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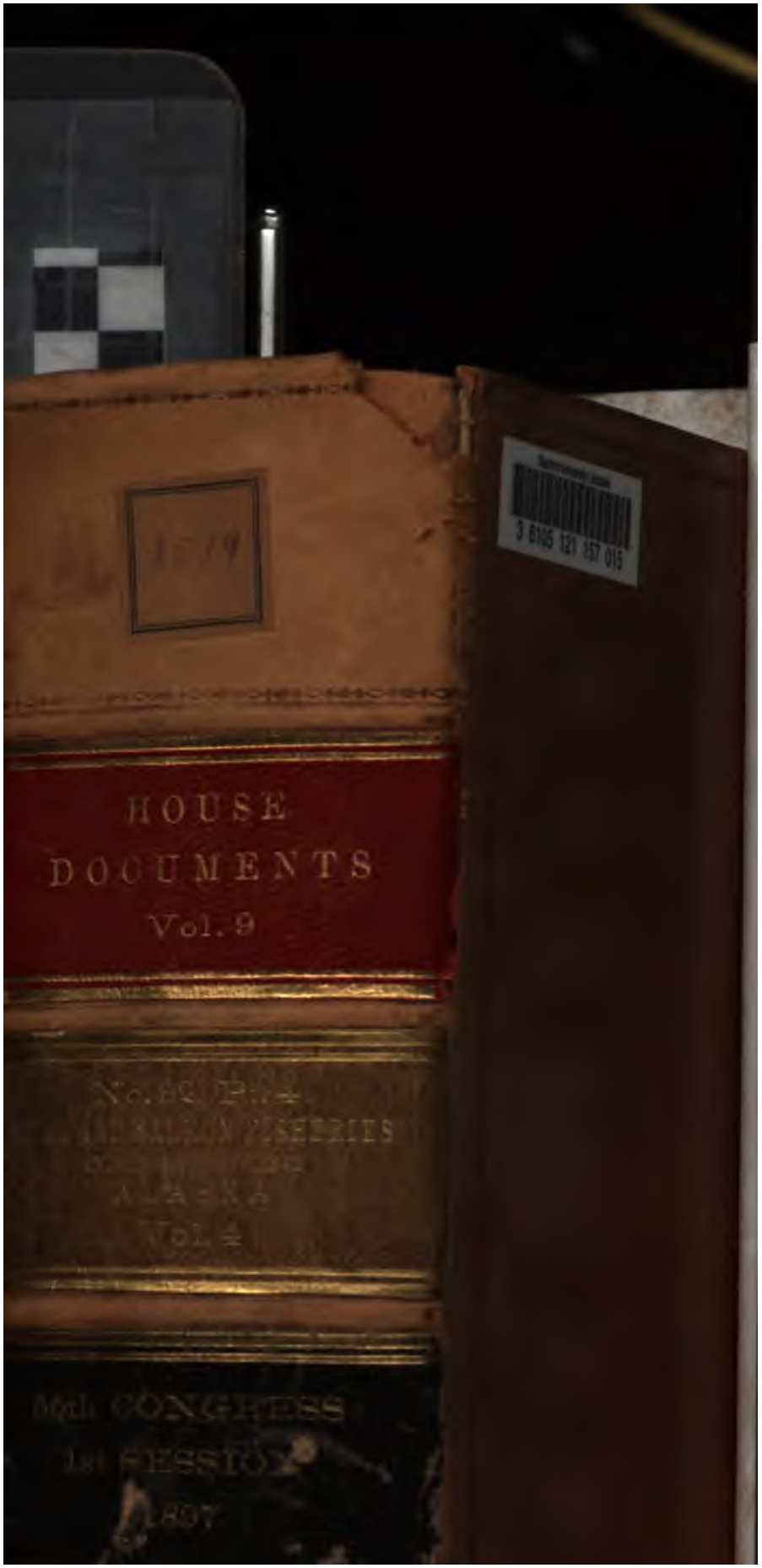
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AL AND SALMON FISHERIES

AND

GENERAL RESOURCES

OF

ALASKA.

IN FOUR VOLUMES.

VOLUME IV.

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1898.

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Being deeply interested in the promotion of the advancement of this neglected region, it occurred to me forcibly that perhaps by being personally present at the seat of Government during the last session of Congress I might be able to mature some plan of action which would receive the sanction of the Department and facilitate the necessary legislation. It had also occurred to me that if proper representations were made, Congress might be induced to make the requisite appropriation for a scientific exploration of the country. Having also been unofficially informed that the honorable Secretary had advised the abolition of the customs district of Alaska, based upon a report said to have been furnished by Col. Henry C. De Ahna, late collector at Sitka, I thought my presence in Washington, where I could converse with the Secretary and present my views to the proper committee of Congress, might be conductive to the public good, and so, instead of making written report, I addressed the Department the following letter:

SPECIAL AGENCY TREASURY DEPARTMENT,
Victoria, British Columbia, January 9, 1878.

SIR: Since the withdrawal of the military from Alaska, that Territory has been practically without any government or protection whatever, save the occasional presence of a vessel of the revenue marine.

I have endeavored to keep the Department advised of the state of affairs in that locality to the best of my knowledge, and a very satisfactory result has been obtained with the limited means and jurisdiction at its command.

The opinion, however, is respectfully ventured that some additional legislation is needed for that Territory, and a report has already been rendered in reference to the importation of spirituous and vinous liquors.

As previously advised, I am collecting the requisite data and information for the presentation of some reflections upon the proposition to abolish the whole customs district of Alaska, a measure which can only result in great loss to the revenue.

Since my incumbency as special agent, August 6, 1874, a great deal of my time and attention has been directed to the wants and resources of this, to-day, almost unknown region.

I am not prepared at present to charge directly any persons with a deliberate intent to undervalue the natural wealth of Alaska, and prevent its settlement and civilization, but that there is an undercurrent at work to belittle the purchase and decry the acquisition from Russia as worthless and a desert watery waste is patent to all those who have the good weal and interest of the Territory at heart, and who have made explorations there, and who are cognizant there lie in Alaska immense fields of undeveloped mineral wealth, which only require the fostering care of the Government to make valuable to mankind.

For more than two years have I endeavored to impress upon the Department the substantial result which would ensue from a thorough inspection of that country by an officer of this agency, not only to thoroughly overhaul the customs force, location of officers, suggest changes, etc., but to collect all useful information practicable in regard to its mineral wealth, fisheries, timber growth, and other natural resources.

It may safely be stated there is not a single vessel in the revenue marine which is properly built and large enough to enter upon a lengthened cruise in Alaskan waters. If the Treasury Department is to alone exercise control and jurisdiction over Alaska, necessity exists for the immediate construction of a suitable steamer.

As I have made the whole subject a study for years, it has occurred to me the presentation of my views might have some weight with the Department and Congress, especially with the delegation from this coast. Personal presence in Washington would, in my judgment, be of practical benefit, hence I have the honor to submit most respectfully to the honorable Secretary the propriety of directing me to report there in person for that purpose.

There are also many other matters touching Department affairs on this coast which I am satisfied a visit from myself to the seat of Government will improve and better the interest of the public service. A precedent for this was established while Secretary Boutwell was in office. He ordered my immediate predecessor, C. A. Morrill, special agent, to report in person at Washington for consultation in reference to customs matters on the Pacific Coast.

My address will hereafter be San Francisco.

I am, very respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

Hon. JOHN SHERMAN,
Secretary of Treasury, Washington, D. C.

On February 18, while I was at Sitka, nine canoes arrived at this port from Auk, In one canoe was found a half gallon of whisky, and the owner was fined by Mr. Militich, the inspector, two blankets, which was paid.

While my policemen were searching the canoes a Tar-koo Indian came out of his hut and attempted to kill one of the policemen. He snapped the cap twice, and the gun would not go off. Mr. Militich cited the offender to appear before him, and as a punishment demanded his canoe. This he refused to surrender, whereupon he was informed that he would be tied to a post. Not relishing the idea of being tied up, he said he would surrender his canoe, which was done. On my return from Sitka I cited this Indian to appear before me, and he refused to appear, sending word that if I desired to see him I could call at his house. I thereupon sent him word that his canoe is forfeited. He said he would come and take it away, and I notified him that I will shoot the first Indian that attempts to touch it, and so I will.

While I was at Sitka another thing occurred at this port that puts to shame anything that has happened heretofore. A gang of rowdies and bummers have, for the past three months, been in the habit of getting on a drunken spree, and then at midnight going about the town making most hideous noises imaginable, disturbing everybody, and insulting those who complain of these doings. On the night of February 16 the incarnate devils started out about midnight, and, after raising a commotion all over town, visited a house occupied by an Indian woman, gave her whisky that made her beastly drunk, and then left. Shortly after their departure the house occupied by the woman was discovered to be in flames, and ere any assistance could be rendered the poor woman was burned to death. The burning house being so near to the custom-house, the people had great difficulty in preventing it from being burned.

Now, sir, unless we have some power here very soon that will drive terror to the hearts of all contemptible white men and insulting Indians, trouble will occur of a serious nature.

At present there are about two hundred and fifty white men here awaiting the Stickine River to become good traveling, and unless it should grow colder than it has been thus far the ice will not become good and miners will have to wait till the opening of the river, which will be two months. In such an event nearly a thousand men will be congregated here, and they, mixing with two thousand Indians, with plenty of whisky, what may we expect?

Is it policy for me to let white men and Indians understand that I have no legal right to interfere in the liquor traffic? No, sir; that would be the worst thing that ever happened. Should I stop raiding on whisky makers, in twenty-four hours thereafter the town and Indian village would be flooded and —— would be to pay. In the absence of all law and order, when the people were excited and crazed with liquor, and when we all expected a conflict between bad white men and law-abiding Indians, at the request of a few good citizens and Indians I stepped to the front and announced that I could and would preserve peace and good order in defiance of all opposition. Notwithstanding the slurs, insults, and vile abuse heaped upon me by a set of bummers, and notwithstanding the resistance shown by Indians to my authority, I have not weakened, but become more determined. All I ask is that I may be supported in my efforts by whatever assistance or authority that is sent here. I have taken the names of all Indians that have bucked against my authority, and I expect them to be punished in some way. If not, then there is no use for me to try to execute the laws, for if an Indian resists my authority in one instance he will in another.

One of the Indians who has interfered with my efforts to stop the liquor traffic has in his house two bales of English blankets that he smuggled into this port last summer. Have I not the authority to seize them? Whenever a war vessel or other power comes here I intend to make a raid for blankets unless otherwise directed. If you think it advisable, I will take them at any time, war vessel or no vessel.

Another thing I think would be advisable for the Department to do in case a war vessel comes here, and that is to compel all bad Indians who are located here temporarily to pull up stakes and go to their own homes. There are plenty of Indians here that belong to other tribes, and who are staying here solely for the purpose of trafficking in liquor. They should be sent away, and informed that if they return they will be punished.

The fines that I have imposed on Indians I propose to turn over to the mission school at this place to be used for church purposes, unless the Department should disapprove of my actions and order them refunded. In such an event, I would be compelled to resign my position, inasmuch as I nor any man can, under the present state of affairs, execute the customs laws faithfully without assuming certain authority not conferred by the statutes. The policy of the Government towards Alaska has been a disgrace.

Instead of encouraging immigration and a development of the resources of this country, the policy has been to discourage enterprise and keep capital from being

prudent to do so now, you must be the judge, bearing in mind if the seizure is deferred the merchandise may be surreptitiously gotten out of the way,

I certainly do not deem it advisable, under existing circumstances, for you to make a general raid for smuggled goods. Better wait until you have an armed force at your back. I feel certain you will have a revenue steamer sent you as soon as the authorities at Washington can act upon your report and the recommendations I shall make.

In the meantime the notices I have prepared for you, touching the speedy advent of such vessel, may have the effect of intimidating the lawless horde of white and copper-colored vagabonds by whom you are surrounded. The giving publicity to the speedy arrival of a revenue-cutter is of course left to your own judgment. If you think it will interfere with any seizures which might be made at Tongas or Wrangell, perhaps it would be better it should not be made known. If necessary to enforce your authority, use it by all means.

I can not properly advise you upon your proposed disposition of the fines you have levied. They certainly do not belong to the customs. Would it not be well to wait until we can have Departmental action in this matter?

Do not contemplate resigning for one moment. Like yourself, I am satisfied Alaska has seen her darkest days, and I trust I may be able to impress upon the Department that your Territory is not an elephant upon its hands and only fit for polar bears to live in.

I note what you say about the illicit trade at Tongas, and shall make special mention of it in my report. It only goes to show how utterly the Department lacks proper information upon the necessary points in your district where customs officers should be stationed.

In all probability I shall be ordered in the cutter and charged with the inspection and investigation of all matters in your district. I shall avail myself of your suggestions and experience, and shall take pleasure in making your personal acquaintance.

In regard to the seizure of giant powder, I will write you hereafter.

I shall send this to Victoria, to be forwarded by the *Otter*, should she sail before the *California*.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

I. C. DENNIS, Esq.,
Deputy Collector of Customs, Wrangell, Alaska.

In order that the situation of affairs may be more readily understood, the following correspondence is here inserted:

CUSTOM-HOUSE, WRANGELL, ALASKA TERRITORY,
January 15, 1878.

SIR: Yours of the 5th instant, with inclosure, received. I was greatly surprised at not meeting Colonel De Ahna on arrival of the *California*. I have transmitted to the Sitka office all collections made up to the 1st of January. In future I shall retain, for safe-keeping, all moneys received, unless otherwise directed.

Regarding the state of affairs at this port, I have to say that at present all is quiet. But during the holidays serious trouble almost occurred. Whisky making by white men and Indians had become so common, and the amount of liquor smuggled into this port being so great, the consequences were that all our hoodlums and loafers were engaged in the traffic. Many men became drunk and riotous, and with difficulty the customs force, aided by a few citizens, prevented bloodshed.

One John Petelin, a Russian by birth, sold to an Indian some whisky of his manufacture, which caused a drunken row among the Indians, in which several got seriously hurt. On the following day the "church Indians" (those who attend school and church here) concluded to make an example of somebody; therefore they marched to the Russian's house, seized his still and liquor, and, with him in custody, marched to the ranch. Coming to me for instructions, I advised them to tie the culprit to a post for one hour; which was done. This act created considerable excitement among the bad white men, for they did not know when their turn might come.

For two years I have endeavored to prevent the manufacture of liquor here by advising. But talk won't do; punishment must be inflicted in order to drive terror to the hearts of the guilty.

Seeing that something must be done to prevent a conflict between law-abiding Indians and bad white men, I, with Mr. Militich, deputy collector from Tongas, made a raid on the town and Indian ranch. Result, 21 stills, several gallons of "hootzenoo," and mash sufficient to make liquor enough to demoralize all the Indians in Alaska were found and destroyed.

As said before, the honorable Secretary must be fully advised in the premises for his guidance. This agency can only instruct you upon what legitimately comes within the law and regulations touching the collection of the revenue.

The law unquestionably confers upon the War Department the exclusive authority for the introduction of spirituous or vinous liquors into the Territory of Alaska.

Since the withdrawal of the troops General Howard has refused to issue any permits for such introduction. I am, therefore, clearly of the opinion that unless a shipment of ardent spirits or wines to Alaska is sanctioned by the military authorities, you have no authority to permit the introduction, either for medicinal purposes or for any purpose whatever, and you should seize all such mercandise.

The shipment of liquors to Alaska has recently been made the subject of a report from this agency to the Department. When reply is made thereto you shall be duly advised.

I note what you say in reference to the retention of all collections for the future for safe-keeping, unless otherwise instructed. When allusion was made to this in my letter from Victoria of the 5th instant, it was merely intended as suggestive, and I see no objection, under the condition in which your district has been left, for you to pursue, in reference to your money collections, such course as may seem best to yourself. Doubtless instructions will soon be sent from Washington upon this subject.

Please, until further advised, address me at Port Townsend, and let me hear from you frequently, and any assistance I can render you in any way will be cheerfully accorded.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

I. C. DENNIS, Esq.,
Deputy Collector of Customs, Wrangell, Alaska.

Following the letter of February 23, came the following from Mr. Dennis:

CUSTOM-HOUSE, WRANGELL, ALASKA,
Deputy Collector's Office, March 18, 1878.

SIR: In reply to your letter of 4th instant, I have the honor to state that, under date of 23d ultimo, I addressed a letter to you, in which the condition of affairs at this port were freely set forth. The said letter I forwarded per steamer *Otter*, and beyond doubt you have received it ere this.

At present writing all is quiet at this port. The Indians and white men who have been endeavoring to create trouble have come to the conclusion that it won't do to fool with me.

I have in my previous letter advised you of my taking a canoe from an Indian who attempted to shoot one of my Indian policemen. Finding that I would not return to him his canoe without paying a fine he commenced making threats of what he would do. Seeing that talk would not frighten me he concluded to test me further, and a few days after our "talk" fourteen large buck Indians came to take the canoe. I happened to step from the office just as they had picked up the canoe and were walking off with it. Telling them to let the canoe alone, and finding no attention paid to my demand, I stepped into my office, got my rifle, rushed out, and told them to drop the canoe or I would kill the whole lot of them. Seeing that I meant business they put the canoe back. On investigating the matter they told me that a white man told them to come and take the canoe, and that I would not dare to interfere.

A few days after this occurrence the Indian came and wanted to know on what conditions I would let him have the canoe. I told him that if he paid me $25 he could have the canoe, otherwise he could not. After a long pow-wow he paid the amount, or rather the equivalent in blankets, etc. I told him that if he in future interferes with my authority I will hang him, and his reply was, "You have made a good Indian of me, and in future I will behave myself."

As I have said before, when you touch an Indian's pocket you touch his heart; at least such has been my experience with the Indians of Alaska, and it proves the fact that by extending civil law over this Territory the Indians can be controlled better than by any other mode.

The want of law here is daily more keenly felt. I am annoyed continually by Indians and white men who come to me to settle disputes. What can I do? In many instances the charges are so aggravating that I must act in order to prevent bloodshed.

I am becoming so disgusted with the state of affairs that I am most tempted to leave the country in disgust; while, on the other hand, I believe that affairs can't get worse, and there are prospects of their becoming much better. That the present Congress will legislate on Alaska, is my humble prayer.

From present appearances the Stickine River will be open to navigation by the 10th

Neither are there any data or memoranda of expenses incurred du the time for collecting the revenue.

Previous to Congress making permanent provision for a customs trict in the Territory, the Department, acting under the power to n regulations to carry out the revenue laws, and actuated by a desi accommodate the inhabitants and promote the public welfare, d mined temporarily to permit the importation of foreign merchan and accordingly, in August, 1867, William S. Dodge was appointe the Hon. Hugh McCulloch, then Secretary of the Treasury, a sp agent and acting collector for the district of country ceded by the sian Government to the United States, and charged in conclusion o letter of instructions by the Secretary in the following language:

You will, by a careful perusal of your instructions, which have been approv the Solicitor, and an attentive examination of the accompanying papers, sca fail to comprehend the requirements of your position, and by your urbane upright deportment in so doing materially serve to draw in closer bonds of symp the people thus newly incorporated into our Union.

It will be observed that no mention is made of the amount of of fees collected. This would entail much and unnecessary labor, would be of no practical benefit, for the reason that all such fees g swell the salary of the collector, and the United States derives no b fit from them whatever, save when they exceed the maximum com sation allowed by law to the collector. In no instance has this pened in any year, and they are therefore omitted. It may be remar however, that the fees of the office for the fiscal year ending Jun 1878, will not amount to over $500.

Before presenting the figures, the following remarks of Hon. W Dodge, the first collector, delivered at Sitka, July 4, 1868, showing condition of the port at that time, are here reproduced:

Upon the assumption of Federal authority in this Territory came the establish of customs regulations, and this place was declared a port of entry. Immedi upon the raising of the Stars and Stripes was unfurled the revenue flag, decl commerce open to all the world, subject to national laws. The first thing w change the nationality of all the vessels belonging to the country, thereby addi the American merchant service. This is being done as fast as opportunity offers to-day the port of Sitka alone presents a creditable amount of shipping. Ther belonging to us four steamers, one ship, two barks, three brigs, and four schoo making 2,220 tons, aggregate measurement. And notwithstanding all the disad tages under which we labor, the commerce of this port has been considerable. the collector's office I have gathered the following official statement. It cover months, from January 1 to July 1, 1868.

During that period the amount of imports admitted and paying duty were va at $26,661.52; the export trade reached the sum of $277,954.67. Nor has the coast trade been at all insignificant. During the same time there were entered at this stores and trading goods valued at $91,413.97. There was also cleared for dom ports, below and along the coast of Alaska, merchandise to the amount of $59,78

Nor do these statements include any stores entered for the use of the Army Navy, either here or at other points along the coast. The local trade is al importance. From estimates furnished by the merchants, the trade with the wh Americans, and Russians, will average $70,000 the present year. The trade wit Indians—the Sitkas, encamped near us—will fully equal if it does not exceed $50

The following are the figures:

Duties collected prior to July 1, 1869	$21, 4

Duties collected from July 1, 1869, to May 1, 1878, embraced as follows:

July 1, 1869, to December 31, 1869	$9
January 1, 1870, to December 31, 1870	4
January 1, 1871, to December 31, 1871	7
January 1, 1872, to December 31, 1872	2
January 1, 1873, to December 31, 1873	1
January 1, 1874, to December 31, 1874	6

This would make the total amount of disbursements from Ju 1869, to May 1, 1878, a period of nine years nearly, reach the su $116,074.87.

The following recapitulation will be more easily understood, eml ing all collections, save fees, from July 1, 1869, to May 1, 1878:

RECAPITULATION.

Received from duties	$27,
Received from tonnage tax	3,
Received from Marine-Hospital collections	2,
Received from fines, penalties, and forfeitures	24,
Total	57,
Add duties collected at Wrangell for January, February, March, 1878, not reported to Sitka office	
	57,

Showing an excess of disbursements over receipts from July 1, to May 1, 1878, in the sum of $58,520.72, or about 100 per cent incr

In the expenses incurred in the district of Alaska no mention is for the maintenance of vessels of the revenue marine. That car strictly there be chargeable to the expenses of collecting the rev The revenue cutters in Alaskan waters perform multifarious dutie fact, they have been the safeguard and life of the Territory, and if was not a single custom-house in the whole of Alaska, just as many ters would have to be employed as have been and as are necessa the present day for the protection of the lives, liberty, and proper its inhabitants, irrespective of customs law, revenue, and exactio the contrary notwithstanding, unless naval vessels should be empl for a like purpose, and it would be just as sensible to charge a po of the naval appropriation expended by naval ships cruising in Ala waters to expenses of collecting the revenue as to charge any part o appropriation for the revenue marine to the expenses of the port of and other ports in the district because the cutters perform duty in waters.

THE COMMERCE OF THE PORT

of Sitka has dwindled to almost nothing within the past few years. stately ships now ride in that beautiful harbor, and, save the mo trips of the steamship *California*, carrying the mail, and the occa visit of an armed vessel or some small coaster, the quiet of the pl undisturbed by any vessel of any nation.

The following is the list of vessels documented at the port:

	No.
Under permanent register, sail	5
Under permanent register, steam	1
Under temporary register, sail	2
License under 20 tons, sail	3
Total	11

The decline of trade has been gradual but sure since the purcha the United States. Here the Russian-American Fur Company had headquarters, with numerous employees and retainers; a large nu of troops were quartered in the barracks, and it was the grand c of trade and commerce of the whole Territory. Sitka at this time probably, a population of 2,500 or thereabouts.

The Alaska Commercial Company, the successors of the Russia

cle 471 of the customs regulations issued in pursuance thereof—giving certain general instructions, uses the following language:

Beyond this the Department can give no definite instructions, but must lea to the exercise of a sound discretion under law and regulations, including the g views of the Department, as above set forth.

The language of the statute is as follows:

SEC. 2515. That no duty shall be levied or collected on the importation of p brought into the territories of the United States, nor on the proper goods and e of whatever nature, of Indians passing or repassing the boundary line afo unless the same be goods in bales or other large packages unusual among In which shall not be considered as goods belonging to Indians, nor be entitled exemption from duty aforesaid.

There can be no question but a very large trade is carried on b Indians in this merchandise. It is almost next to an impossibil watch or keep track of their innumerable canoes, and that bales o blankets, in "original packages," are constantly smuggled is well k to the customs officers, who are powerless to prevent it with the pr force at their command. My examination discloses, as a rule, tha various customs officials have exercised a suitable discretion, bu stances have arisen when authority has been stretched to too fine sion. It is a grave question, for a large amount of duties are purp evaded by the Indians, and blankets of American manufacture a erally driven out of this market; but if the line is too closely dra will be productive of trouble, and as the collector is powerless to en his authority, the red man will in the end get the best of it. It is p one of "sound discretion," and there we will have to let it remain the collector is invested with some authority to enforce his decree

There is probably no portion of the United States where more e tial requisites for a collector are required than in Alaska. He mu well versed in the whole organic law of the land, as well as those fo collection of the revenue, of sound and discreet judgment, willing, w ever the necessities of the case demand, to assume responsibility; in he must be a man equal to the occasion, and, above all things, ne a moral or physical coward; if the latter, the Indians, quick-witte of keen observation, will readily "twig" it, and his mission is end

There have been since the district was established, July 27, 186 less than seven different collectors who have held office.

THE METHOD OF DOING BUSINESS

will compare favorably with other small ports of the nation as a Great difficulty, however, is experienced in having communicatio most of the outside ports. Returns from Unalaska, 1,000 miles di are had not oftener than twice or thrice in a twelvemonth, and through vessels of the Alaska Commercial Company, via San Fran likewise with the office at Kodiak, 600 miles off. The practice b fore has been for the deputies at these two ports to make return of collections and retain the same, the collector deducting from the a of each the several amounts so withheld, sending them as opport may present a check on the assistant treasurer at San Francisco f remainder. Payments necessarily are made with great irregulari

The collector, upon receiving drafts for expenses for collectin revenue, deposits them without delay with the assistant treasu San Francisco. There were no funds of this character on hand 1878. On the contrary, the salaries of deputies were greatly in a

and the expenses of the different ports had not been settled for a long time. This, no doubt, was partially owing to the district having no collector and for other unknown reasons.

I found the following state of affairs:

The subordinate officers of customs had received their salaries up to and including the dates set opposite their names, as follows:

Isaac C. Dennis, deputy collector, Wrangell, September 30, 1877.

John H. King, deputy collector, Kodiak, December 31, 1876.

Leroy Woods, deputy collector, Unalaska, September 30, 1877.

Alex. Milletich, deputy collector, Tongas and Wrangell, September 30, 1877.

Edward G. Harvey, deputy collector, Sitka, October 22, 1877.

Mr. Harvey was paid in full to his voluntary retirement from office. When De Ahna assumed the office, he appointed as his deputy Edward H. Francis, esq., who continued to act as deputy until December 3, 1877, when De Ahna became functus officio by reason of the Senate not confirming his nomination. He then became acting collector, and was performing such duties on May 1, 1878. He had been paid nothing for his services.

The Department was suitably notified by me of this condition of affairs. After Collector Ball entered upon the duties of his office I communicated with him upon this subject, and append his reply:

CUSTOM-HOUSE, SITKA, ALASKA,
Collector's Office, August 9, 1878.

SIR: Before leaving Washington I made a requisition for funds to pay salaries of deputies, as follows:

For Wrangell, nine months, at $1,500	$1,125
For Sitka, nine months, $1,200	900
For Kodiak, nine months, $1,200	900
For Unalaska, nine months, $1,200	900
	3,825

In each case to June 30, 1878.

The amount of this requisition was approved and forwarded me by draft.

On arriving here I learned that there was nothing on file in this office to show that the deputy post at Tongas had been abolished, which I was informed at the Department had been done, but of which neither Major Berry, former collector, nor Mr. Francis, last acting here, had ever heard. Further, I learned that the salary of the deputy at Kodiak for 1877 had not been paid, and I found an official oath of Mr. Alfred Greenbaum, taken on the 25th of May, 1878, before Treasury Agent J. M. Morton, at Unalaska, with a statement that he had been discharging the duties of deputy at that port since October 8, 1877, when he was left in charge by Deputy Collector Woods on his departing on the voyage from which he never returned.

In this state of facts I wrote at once to the Department, setting everything forth fully, and requesting to be instructed as to what amount was due, and to whom and how I was to pay them. I omitted to state above that Mr. Alexander Milletich I found at Wrangell, having been acting as inspector there since the Department declined to pay for rent at Tongas, and claiming pay as deputy. This was also stated.

A letter arrived from Mr. King, deputy at Kodiak, directing his full salary for 1877 to be paid to the order of a San Francisco house, for which reason I mailed him by the cutter a draft for his pay for the first six months of this year only. Mr. Francis desired his to be withheld till I could hear from the Department as to his status here while acting as collector and the full compensation due him. Mr. Dennis has arrived by the steamer, and upon a final statement of his accounts will be paid the sum I have drawn for that purpose.

This is all the information I can give you upon the subject you inquire of in yours of July 23, received to-day. I trust it may answer fully the purpose for which you desired it.

Yours, respectfully,

M. D. BALL, *Collector.*

Maj. WILLIAM GOUVERNEUR MORRIS,
Special Agent Treasury.

This is all the information I have upon this subject, save the c Alexander Milletich, the particulars of which I am thoroughly fa with. This officer, a native of Austria, was appointed a depu lector and inspector of customs August 1, 1874, at a yearly sal $1,200. His station was Fort Tongas.

On May 22, 1877, I was furnished by the Department with a buildings rented throughout the United States for customs pur and was instructed to make a careful inspection of each of the buil named in such list within the customs district under my charg also directed to report whether the occupation thereof was nece

On June 25 following I notified the Department I did not d necessary to occupy longer the building at Tongas, and that written to the collector at Sitka, directing him to discontinue the On the same day I notified the collector. He replied as follows:

CUSTOM-HOUSE, SITKA, ALASKA
Collector's Office, July 14,

SIR: Your letter dated June 25, 1877, Portland, Oreg., has been received, reply permit me to state that, regarding customs station at Tongas, there are n ings on the island excepting that occupied as custom-house, and certain barra belonging to the same parties, Koshland Bros., Portland, Oreg., and an India

Had it not been for the restraining influence exercised by a deputy collect the Indians at that point, I should have asked the Secretary of Treasury to a the post two years ago. Should a cutter be sent here to cruise these waters, would be economy to dispense with that post.

I am, sir, very respectfully, your obedient servant,

M. P. BERRY, *Collecto*

Hon. W. G. MORRIS,
Special Agent United States Treasury, Port Townsend, Wash. Ter.

The Department sustained my action, and the collector at Sit so informed, but there is no record on file at that office of the d tinuance of the office at Tongas, and I am assured by Maj. M. P. late collector, and his special deputy, Edward G. Harvey, esq., t such instructions were ever received at that office.

On July 1, 1878, the Department discontinued the lease at T and so notified the collector at Sitka. In September followin lector Berry ordered Milletich to duty at Wrangell, there being a sity for an additional officer at that point. He repaired thithe has continued to exercise his duties until relieved by the p collector.

In my opinion, he is clearly entitled to his salary, equally s every other officer in the district who has been paid by Collector If the Department did abolish him, certainly the head office at nor himself have ever received any such advices, and it appears out explanation) there has been an error in his case.

The expenses of the offices at the different ports, as disclosed have been settled as follows: Sitka to June 30, 1877; Kodiak t 30, 1877; Unalaska to July 1, 1874; Wrangell to June 30, 1877; T to June 30, 1877.

Owing to the anomalous condition of affairs in the district, I no money accounts had been rendered to the Department sin incumbency of Collector De Ahna, or any other papers pertain the current business of the office. Suitable instructions were giv acting collector as to their rendition, which have since been co with, all the papers passing through this agency.

There was no money on deposit with the assistant treasurer Francisco, although De Ahna had been advanced by the Depar

It sometimes happens that vessels licensed here, under 20 to have their papers expire at Kodiak Island, 600 miles distant. munication to have them renewed in time is impossible. T renewed as regularly as circumstances will permit. For this re fines are levied for the nonsurrender of license.

The general manner of doing business is commendable and n correction, save as before indicated.

The collector has charge of all the public buildings, property, the abandoned garrison. The number of buildings turned over military authorities was 42. These he has to watch, to preven from being plundered by Indians and other bad characters.

I find some looseness has prevailed in the making of estim the expenses of the different ports. Fair economy can ma reduce these expenses. An error has, I think, crept into the ment of the office by not sufficiently scrutinizing the account outside deputies in respect to fuel, lights, etc.

The deputy collector at Kodiak Island has charge of the publi ings at that post, which were vacated by the military Septem 1870, one of which is used as a custom-house. He is also charg the care and custody of the quarters and other buildings at Fort Cooks Inlet, about 160 miles distant. The abandoned buildin transferred to the custody of this office by the War Departmen 2, 1875.

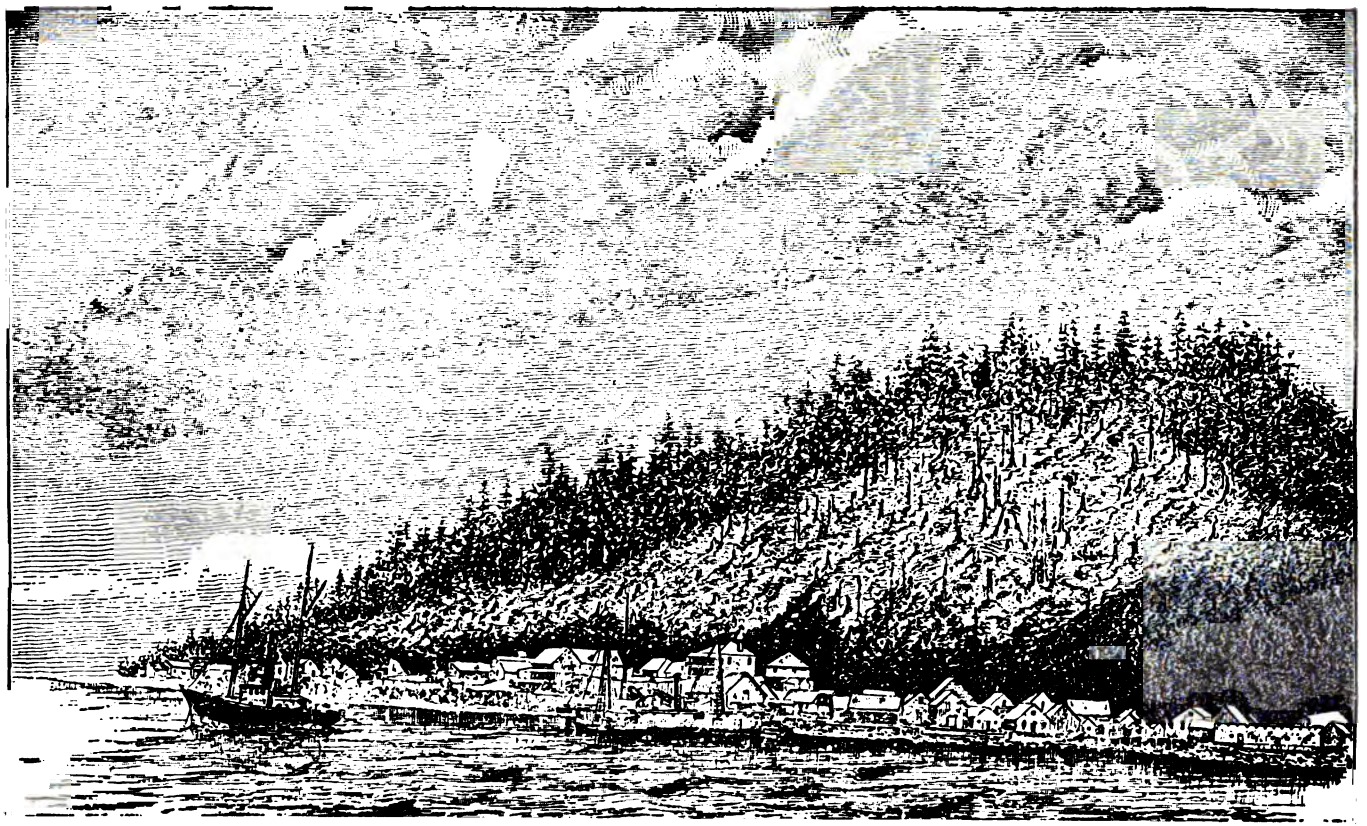
The United States owns its custom-house at Unalaska, rece paired at a cost of $250.

I found the wharf at Sitka very much out of repair, the pil much ravaged by the attacks of the *Teredo navalis*. Prompt was necessary, else the whole end would have tumbled into th and great damage ensued. The deputy collector had in his $39.40, which had been collected by the military as a wharf fund 1 directed to be used in repairs, and directed Mr. Francis to co with the steamship officers and merchants, and at once put th in proper condition, not, however, binding the United States sum whatever. I established rates for wharfage, which will sufficient wharf fund to keep the wharf in repair and pay all be incurred. The present collector, Colonel Ball, has carried o views and improved upon them. To have lost this wharf wo been a piece of carelessness unpardonable.

It must be observed this district has not been inspected by a agent of customs since Col. Frank N. Wicker, present collecto toms at Key West, Fla., left in the summer of 1869, and, w legitimate customs business proper has been fairly conducte has been altogether too much extravagant waste and expend the management of public affairs. But this is more properly able to the War than the Treasury Department.

It is respectfully submitted the visits of an officer of this should be more frequent to Alaska. Clothed with more pow generally specially instructed, he can readily put a stop to abuses and suggest and direct measures of economy and refor future. He can be of great assistance to the customs officers, provided he studies carefully the character of his mission nature of the country and its inhabitants, and, if a suitable o of great aid to the Department in the management of the affai Territory.

The following comprises a list of the officers and employees a



examination of her condition. I append an extract from the log of the cutter:

Inspected the boat as far as practicable and found her hull, boiler, engin dependencies in a very fair and safe condition; also found her supplied with life-preservers, etc., in accordance with law.

At the request of A. T. Whitford, esq., of Sitka, her owner, I him the following letter:

OFFICE SPECIAL AGENT TREASURY DEPARTMENT
Sitka, Al

SIR: You having complied with the law in reference to the steamer *Rose*, a all in your power to have her inspected, you are at liberty to continue runni steamer until the supervising inspector makes arrangements to have her ins I have duly reported all the facts to the supervising inspector at San Fra Should you at any time be boarded by an officer of the revenue marine, y submit this letter to him, in the absence of your regular inspection certificat

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS
Special A

A. T. WHITFORD, Esq.,
Sitka, Alaska.

And also notified Charles C. Bemis, esq., supervising inspec San Francisco, of the facts. The *Rose* was afterwards charterec party of miners on a prospecting tour, and I so informed Mr. E July 1, 1878.

A similar case occurred at Wrangell. The American-built stea *Beaver*, running between Wrangell and Glenora Landing on the S River, came all the way from Wrangell to Seattle in 1877 to b spected. Her certificate expired April 9, 1878. The owners exha every avenue of compliance with the law. To have gone again to tle would have been extra hazardous, besides losing the spring p ger trade, etc., on the Stikine. The same officers of the revenue n examined her carefully, but no hydrostatic test was made. reported her motive power safe, hull in good condition, sufficie boats and life-saving apparatus, and vessel fit to carry passenge

Mr. Bemis was duly notified by me of all this April 27, 1878. boat was subsequently totally wrecked in the Stikine Rapids, an informed Mr. Bemis on the 1st day of July last.

The American steamboat *Nellie* has, however, supplied the l the *Beaver*, and is now running on the Stikine River, having been there from the district of Puget Sound. The same question will when her present certificate expires.

LIGHTHOUSES.

There is not a single lighthouse in the whole district. The Ru formerly had a sort of light, with a silvered glass reflector in the c of the castle, a large building erected upon the hill overlookin town, at an elevation of 110 feet above the water level. It was lamp of small capacity, but could be distinguished 10 miles at se has now gone entirely to ruin.

In the event that Alaska should become thickly settled and the turn out as rich as expected, the commerce of the district will b greatly enlarged, and of necessity lights will have to be created. should be erected outside from Cape Fox, which is near the bou line between British Columbia and Alaska, a first-order light at Chacon, on the south end of Prince of Wales Island, being the entrance to Duke of Clarence Straits, which are the straits which l

The following communication is referred to here:

OFFICE SPECIAL AGENT TREASURY DEPARTMENT,
San Francisco, Cal., April 14, 1

SIR: The honorable the Secretary of War, having directed the General of the to vacate the garrisons in Alaska Territory and order the troops therein to other in the Division of the Pacific, thus withdrawing entirely military protection i quarter, I am induced to present to the Department some facts for considerati coming within my own knowledge and as given by those familiar with the situ

It is with some feelings of delicacy this subject is approached, in the absence opinion being requested; but, as Alaska is embraced within the jurisdiction district, and having given that Territory and everything connected therewith attention and made it my especial study for the past two years, it is deemed at this time to give the result of such experience and observations.

The telegraph states that simultaneous with the withdrawal of the military enue cutter will be ordered to Sitka. It is, of course, conceded that some ade force must be supplied when the troops abandon the Territory, in order to fully out our treaty stipulations with Russia and afford protection to our resident ci there. The revenue steamer *Richard Rush* is now preparing for sea, but her crui destination are not yet known here. It is conjectured she will proceed to th Islands or to Sitka; possibly her cruise may extend to both places.

General Howard, U. S. A., commanding the Department of the Columbia, ha graphed to the division commander urging vigorously that a gunboat be disp to Sitka, or that the force on the revenue cutter to be sent there be mat increased. It is of this I now propose to speak; and will take the armamen complement of officers and men of the *Rush* as an example, as applying to oth sels of her class in service on this coast. The Navy has no gunboat availa these waters; hence the revenue marine must for the present be charged wit duty.

The *Rush* carries 6 commissioned officers and a crew of 30 men all told, inc seamen, firemen, petty officers, stewards, cooks, and boys. Her armament co of 2 20-pound rifle Dahlgren bronze howitzers, small arms, 12 Ballard's breech-lo rifles, 12 revolvers, and 12 cutlasses. It is submitted this is not sufficient fo take the place of the garrison at Sitka; no assistance could be rendered the i itants on shore. There is a custom-house and other Government buildings and erty of value, all of which might be sacrificed if too small a display of force i at the outset when the change is made. In fact, if trouble should arise wi Indians, it is not more than sufficient to protect and handle the vessel. It is tr cutter would be able to shell an Indian village, but would be generally uns land a sufficient force to destroy it or burn the canoes, the latter being the g punishment there can be inflicted upon the coast Indians, as they live entir fishing, hunting, and trading. These Indians have at times been severely pu by American and British gunboats, and they have great dread of them, but it be borne in mind they have been manned with a large crew and had large ba

When the troops leave Sitka, an armed vessel should be stationed there p nently, making occasional cruises in the Alexander Archipelago, etc. (See my of March 23, 1876, Senate Document No. 37.)

We have no vessels now in service that are fit for this duty; they are entir small, the armament not of the proper description, and quarters for officers an entirely too contracted and wholly unsuitable for the severity of the winters i inhospitable region. Proper steamers should be constructed. In 1868 Capt. Jo White, of the cutter *Wyanda*, visited Alaska, and in an able and elaborate made that year to the Department thoroughly discussed this subject. Atten respectfully invited to his suggestions and recommendations.

It is submitted that two steamers will of necessity have to be sent to Alas season. The one destined for the westward, i. e., the Seal Islands, will be re there as soon as the sealing season commences, now close at hand. These isla distant from Sitka full 1,200 miles, and to go there via Sitka is a very round way. (See my report before mentioned.) When the garrison at Sitka is withd a cutter will have to be substituted in lieu thereof. I would recommend her of small arms be added to, her crew increased at least ten able seamen, a surge additional engineer ordered to the vessel, and that she be liberally supplied wit shell, and fixed ammunition. Immediate steps should be taken to establish depot at Sitka.

The Puget Sound cutter can not, with safety to the revenue, be spared for so time from her station. This cutter is constantly cruising in the sound and in waters, and is absolutely essential to prevent wholesale smuggling in that q The frontier is remote, adjacent to foreign territory, and must be carefully gu In the winter season her services are constantly in demand to aid vessels in di she does more work and effective service than any other vessel of her class

coast. The *Thomas Corwin*, now being completed at this port, is a staunch new vessel, and when finished will be in perfect condition; the whole work on her should be done by the 15th of May next. In every respect she will be more suitable for service in Alaskan waters than any vessel here. She was originally intended for the Columbia River station, but as it is only twenty-four hours' steaming from Puget Sound to Columbia River Bar it is submitted the *Oliver Wolcott* can, in an emergency, do all the duty of both stations, until other vessels can be constructed or sent here. More vessels are certainly required on this coast, and I had this in view when treating this subject before.

The change, as adopted by the administration, is fully in accordance with the views in my published report, but I doubt the wisdom of the policy in ordering the troops away before proper provision is made to replace them, and especially at this time breaking up the post at Wrangell Island. This point is distant 160 miles from Sitka, and is the depot of supplies for the miners on the Stikine River and at Cassiar, in British Columbia. Our coast steamers touch here and land their passengers for these mines. Miners, traders, packers, etc., congregate at this point in the spring and await transportation. In the fall they return from the mines and frequently are delayed here several days. At this point a collision with the natives is greatly to be feared. This is the season of the year when the Government should have sufficient force on hand to suppress broils, protect the Indians from assaults of the whites, prevent the latter from obtaining liquor, and keep them in a proper state of subjection. In the winter season no such necessity exists, for the few whites remaining on the island have such close relations with the natives that no danger is apprehended. However, if the sale of liquor is to be unrestricted at Wrangell Island, the miners will winter there to a large extent and trouble will assuredly be the result. During the summer season the Alaskan coast swarms with small vessels and canoes, navigated by desperate and lawless men, bent upon smuggling, illicit barter, and that especial curse to the natives, trading in ardent spirits. A deputy collector is stationed at Wrangell, but he will be utterly powerless to enforce the revenue laws and stop the smuggling from British Columbia. The sale of liquor will be had right under his nose and he can not stop it.

If the company of soldiers now at Wrangell Island can be kept there until the miners have returned from the far north and gone into winter quarters at Victoria, Vancouver Island, it would, in my opinion, be a wise course for the War Department to pursue. Until the *Thomas Corwin* is ready for sea, the removal of the companies from Sitka would, I think, be premature.

I am, very respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

This letter was referred by the honorable Secretary to the War Department, who sent it to Major-General McDowell, U. S. A., commanding the Division of the Pacific, who subsequently referred it to Brig. Gen. O. O. Howard, U. S. A., commanding the Department of the Columbia, for his opinion. General Howard indorsed my report favorably.

It was also transmitted to Maj. M. P. Berry, collector of Alaska, who wrote to the Secretary as follows:

CUSTOM-HOUSE, SITKA, ALASKA,
Collector's Office, July 13, 1877.

SIR: Department letter of June 8, 1877, "H. B. J." and "S. J. K." asks for report on condition of affairs in this place and Wrangell since the withdrawal of the United States troops. Having anticipated the demand of this letter in report forwarded by this mail, I will nevertheless take this one up and answer in detail.

Paragraph 1, Department letter. The cutter *Rush* came into this port May 19, 1877. Captain Bailey informed me that on the finish of his cruise to the westward he should return to San Francisco. I asked him to come in here in September, if he could, giving my reason therefor. He informed me that his orders did not contemplate other movements than to return to San Francisco direct.

Paragraph 2. Special Agent Morris's report I am forced to confirm. The Secretary of War has been misled by the report of his officers, just as I have been myself. I have the best of reasons for believing that if there is not a vessel dispatched at a very early day to this port this people have been handed over bodily for slaughter to the Indians. Permit me to state that I watched and studied these Indians for three years. Their seeming desire to be on good terms with the Americans, their adaptability to our method of working, their cupidity, connected with many other

things, completely misled me. Therefore, it becomes my duty to say that danger for this community; I might say great danger. The property was re as will be seen by other reports, per this mail.

Paragraph 3. The preservation of peace, etc. If peace is to be preserve must be a vessel stationed at this port. From Chilcat to Tongas are the fier ple. The whole voyage of nearly 500 miles is in inside waters. The western or I might say those after leaving Bering Bay, do not seem to be at all belliger

Liquor.—There is no necessity for using vigilance to prevent the landing of the Indians make all they want, and in town here I have been informed the are two discharged soldiers and eight different Russians running stills. Th probably four or five Americans and two or three Russians who would purcha liquor, in small quantities, for their own use.

Paragraph 4. In the first part of this report I have written of the *Rush*, the captain was so positive about his destination.

Regarding a cutter to visit Wrangell when the miners are on the move, at th Wrangell is perfectly safe. British Columbia tolerates no cutting and shooti it soon tames our pistol and bowie-knife gentry when they have one or two under the English law. It is at Sitka where the vessel's presence is needed, a forthwith. At Wrangell, when the miners are moving through the count Indians are the supply agents. They smuggle, to sell to the whites, English and when they desire a drink they either make or purchase from other Indian of their own manufacture.

All of which is respectfully submitted.

I am, very respectfully, your obedient servant,

M. P. BERRY, *Coll*

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

The following, from Deputy Dennis at this time, is also given:

CUSTOM-HOUSE, DEPUTY COLLECTOR'S OFFICE
Wrangell, Alaska, July 14,

SIR: In reply to yours, under date of 29th and 30th ultimo, I have the honor that since the withdrawal of the troops from Alaska the Indians at this pl vicinity have made no hostile demonstrations toward the lives of the whites; regard to property they have.

Like all Indians, they love to appropriate to their own use that which bel others, and small thefts are of frequent occurrence.

The taking from here, by Lieutenant Humphreys, as a servant, a woman w held as a slave, and claimed by several Indians as their individual property, ca causing trouble; but I, with others, finally pacified the claimants; not, howe after one of the parties demanded that I should go to Port Townsend and bri woman back.

The Indians here, representing tribes from all parts of the Territory, are cont having quarrels among themselves, which originates from the use of liquor manufactured by them and that which they smuggle into this port from Columbia, via Stickine River.

The Indian population of this place, including transient Indians, is always five hundred, and frequently reaches one thousand. Our permanent white pop during the mining season is about one hundred, and during the winter mo reaches three hundred.

Now, in the absence of all law whereby offenders against the laws may be tri punished, with a population as above stated, is it not reasonable to suppose th culties will arise?

Notwithstanding the stringent laws relating to the introduction of liquor in Territory, and with a garrison of troops stationed here, smuggling and the m ture of it could not be prevented, and hence whisky at this port has alway plentiful.

Under military rule here, white men, being drunk, have frequently knocke Indians for pastime, and the assaulted look to the military for protection and But now, in case the like occurs, before whom must the aggrieved come and tection, there being no one empowered to administer justice? Is it not safe to that all, both whites and Indians, when aggrieved, will embrace the first nature; and such being the mode of seeking satisfaction, how long can the pe quietness of the place be assured?

It is utterly impossible for me either to prevent the introduction of liquor in port or the manufacture of it by the Indians, and with plenty of liquor circ among whites and Indians, who commingle together, I apprehend trouble.

A gunboat or revenue cutter has a pacifying effect upon both whites and I

Alaska. That the vessel referred to by him in his order was the enue-steamer *Richard Rush*, then en route, by virtue of special a Congress, to the Seal Islands, for the protection of the fur seal fishe That she would probably touch at Wrangell and Sitka, but would re at neither point. The following telegram was then immediately fr and sent from General Howard's headquarters:

PORTLAND, OREG., *May 28, 1*

SECRETARY TREASURY, *Washington, D. C.:*

General Howard, expecting the cutter *Rush* would remain at Sitka, so interp order of Secretary of War as to order military away. Subsistence, ordnance quartermaster stores have already been brought down. Steamer sails for Sitka 2 to bring troops under this order. General Howard desires vessel designat order to complete order; will leave detachments there in charge of public pro until its arrival. Please answer immediately.

WM. GOUVERNEUR MORRIS,
Special Ag

And answered as follows:

WASHINGTON, *D. C., May 31, 1*

W. G. MORRIS,
Special Agent Treasury, Portland, Oreg.:

Rush has probably left Sitka en route for Seal Islands. No other cutter can be

JOHN SHERMAN, *Secret*

I subsequently made report as follows:

OFFICE SPECIAL AGENT TREASURY DEPARTMENT,
Portland, Oreg., June 23, 1

SIR: I have the honor to inform the Department on the 14th instant the wh the military were withdrawn from Sitka, and such public property as was no or taken away by order of the War Department duly turned over to the collec customs.

After leaving Sitka the transport touched at Wrangell and took on board th rison at that point. On the 28th of May I notified the honorable Secretary, b graph, that Gen. O. O. Howard, U. S. A., commanding the Department of the Colu would leave detachments of troops in charge of public property until the arri a revenue cutter, and asked the vessel be designated. This telegram was writ General Howard's presence and sent at his request.

I inclose copy of General Order No. 13, dated Headquarters, Department Columbia, Portland, Oreg., May 23, 1877, for the movement of the troops from A This order was based upon the supposition that the cutter *Richard Rush* was t sel alluded to in the letter of the honorable the Secretary of War addressed General of the Army, and dated War Department, Washington City, April 1

When General Howard ascertained that the *Rush* was intended for service Seal Islands, he directed that detachments be left in charge of the public pro

On the 1st of June I sent to Col. H. Clay Wood, U. S. A., assistant adjutant-g of this department, a copy of the telegram of the Secretary of the Treasury to t dated Washington, D. C., May 31, that the *Rush* had probably gone from S the Seal Islands and that no other cutter could be sent. The steamer sailed fo June 2, the order for detachments to be left still in force. A member of G Howard's personal staff went to Alaska on this steamer.

Upon arrival there, in pursuance with previous orders to dispose of all a subsistence stores, it was found that the order had been so literally complie as to leave nothing whatever for the subsistence of the men to be left ther order not being contemplated by General Order No. 13.

The same condition of affairs was found to exist at Wrangell. Accordingly, G Howard's staff officer directed all the troops to be immediately removed, whi done, and they arrived at this place on the morning of June 20.

It will thus be perceived that "all control of the military department over in Alaska" has ceased.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special A

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

While at Port Townsend, on Puget Sound, the mail steamer *California* arrived from Sitka, bringing alarming intelligence, and I immediately telegraphed the Department as follows:

PORT TOWNSEND, WASH. TER., *July 23, 1877.*

SECRETARY TREASURY, *Washington, D. C.:*

Collector Berry has left Sitka very sick. Is now at Victoria for medical advice. He reports to Department: "I have the best of reasons for believing that if there is not a vessel dispatched at a very early day to this port (Sitka), that this people have been handed over bodily for slaughter to the Indians." Captain Bailey, cutter *Rush*, informed Berry he should return to San Francisco direct from Seal Islands, according to Department instructions. Captain and officers of mail steamer *California* much alarmed and anticipate immediate trouble. All reports confirmatory of danger. Cutter *Wolcott* will not finish repairs for three weeks. Tubes for boilers have to be supplied from New York.

WM. GOUVERNEUR MORRIS,
Special Agent.

And supplemented it with the following letter:

SPECIAL AGENCY OF TREASURY DEPARTMENT,
Port Townsend, Wash. Ter., July 23, 1877.

SIR: I have the honor to transmit a copy of a telegram this day sent to the Department upon the present existing state of affairs at Sitka, Alaska.

On the 27th of June last I wrote from Portland, Oreg., to Collector M. P. Berry, at Sitka, requesting from him a statement of the status of affairs since the departure of the troops, and asking the reply to be sent me at this port.

On yesterday the mail steamer *California* arrived here, bringing me a letter from Mr. Berry, inclosing a copy of his report to the Department, dated Sitka, July 13, and also another, informing me of his presence at Victoria. I deem the report of sufficient importance to telegraph an extract to the Department without delay and state other coherent information in the dispatch.

In a conversation had yesterday with Capt. Charles Thorne, master of the steamer *California*, he expressed to me grave fears of a general uprising of the Sitka Indians. These Indians belong to the Kolosh tribe, and about 1,000 are now absent engaged in fishing. Sitka Jack, a noted chief, informed Captain Thorne that about 1,000 of his tribe were absent fishing and hunting, and when they returned they intended to seize all the Government buildings and other valuable property at Sitka; that the country and everything in it belonged to his tribe.

Captain Thorne further states, the Indians, contrary to when Sitka was garrisoned by troops, thronged his vessel while at the dock, and were generally haughty, insolent, and overbearing in their manner; that the citizens had a ball in the house known as the "Castle," and during the festivities the Indians entered the stockade and obtruded themselves upon those present, rendering themselves peculiarly disagreeable and obnoxious. It is his opinion, and that of the officers of his ship, that an outbreak is not far distant, which will result in the destruction and plunder of private property, and, if the whites make any demonstration of resistance, a wholesale massacre will ensue. The Russian priest has already sent his family to Nanaimo, in British Columbia, and general consternation and terror prevails among the whole white inhabitants.

Collector Berry has written me, requesting my presence at Victoria, which place I shall visit on the 26th instant, en route to San Francisco, and confer with him.

Not being able to make personal inspection of this portion of my district, I can not of my own knowledge present such an array of facts as might be considered incontrovertible; but I have sought every available and reliable source of information, and have no hesitation in saying that the outlook in Alaska is exceedingly dangerous and alarming. All concurrent testimony points to a speedy outbreak and resultant bloodshed by the warlike tribes, unless restrained by the strong arm of the Government; that an armed vessel either of the Treasury or Navy Department is absolutely needed in the Sitka Archipelago without delay.

I very much question whether the vessels of the revenue marine on this coast are suitable for this duty, and either in armament or crew will prove themselves equal to the service which may be demanded of them. They carry too few men and are not equivalent to a gunboat, which is the proper class of vessel for this dangerous and delicate service.

These views have heretofore been frequently expressed, and any further repetition would be unnecessary verbiage. I merely report such facts as are collated upon this

frontier, and respectfully present them for the consideration and action o Department.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Ag

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

I then addressed the following letter to the commander of the cu *Wolcott:*

OFFICE OF SPECIAL AGENT OF THE TREASURY DEPARTMENT,
Port Townsend, Wash. Ter., July 24, 18

CAPTAIN: The news brought from Sitka by the steamer *California* on Sunda is of an alarming character, and only confirms my belief in the expectation of se trouble with the Kolosh Indians in that quarter.

The collector of Sitka, M. P. Berry, esq., has left there sick and is now at Vic He has furnished me with a copy of a recent report made by him to the Departa which I deemed of such importance as to telegraph a synopsis yesterday t Secretary.

It is not improbable but that the vessels of the revenue marine on this coast at once be called into active service; at all events, they should be held in read to comply with immediate sailing orders.

I would be pleased if you will inform me when the repairs to your vessel w completed, and how long it will be before you can be ready to proceed to Sitk have no advices from the Department which authorize me to indicate that you receive orders to proceed to that quarter. I am merely anticipating an emerg likely to arise at any moment.

I have good reason, however, to think the Department will send a cutter very so visit Sitka and other adjacent points, irrespective of probable Indian troubles, a has been supposed the *Rush* would touch there in September, homeward bound the Seal Islands. This is a mistake.

Collector Berry informs the Department that when the *Rush* was at Sitka he l conversation with Captain Bailey, who informed him after his cruise at the Seal Is terminated he should proceed direct to San Francisco from Unalaska.

Will you please inform me of the character of the armament of your vessel, an number and pattern of small arms you have on hand and their condition; also supply of ammunition you have—character and caliber and condition.

My own conviction is that you are neither sufficiently manned or armed to pe any effective service or operate offensively against the hostile tribes which inl the Alaskan coast, and before you should be sent there your officers and crew sh be strengthened as far as the size of your vessel will admit, and you should be plied liberally with arms and ammunition.

Will you let me have your views upon this suggestion? And in fact I thinl had better make me a very full report upon the subject-matter of this letter, as I d to communicate with the Department without delay.

I shall leave here on Thursday, the 26th instant, for Victoria, to sail from the Monday, the 30th, in the *City of Panama* for San Francisco.

Please write me by return mail and address your letter to me at Victoria, care o American consul.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Ag

Capt. JAMES M. SELDEN,
United States Revenue Marine,
Commanding Steamer Oliver Wolcott, Seattle, Wash. Ter.

Captain Selden replied as follows; the original letter was at transmitted to the Department:

UNITED STATES REVENUE STEAMER WOLCOTT,
Seattle, Wash. Ter., July 25, 18

SIR: I have the honor to acknowledge the receipt of your communication of the instant, informing me of the alarming reports brought from Alaska by the ste *California* of serious trouble with the Kolosh Indians, and wishing to know the repairs to the *Wolcott* will be completed and how long before the vessel wi ready for service, besides wishing to know the character of the vessel, arma number of small arms, quantity of ammunition, etc., and my views as to the fi of the vessel for service in Alaska.

justifies the belief that the white citizens of that place are in danger, conse upon the withdrawal of troops.

HENRY A. WEBSTER, *Colle*

PORT TOWNSEND, WASH. TER., *July 26,* 1

SECRETARY TREASURY, *Washington, D. C.:*

Captain Selden states *Wolcott* in no condition for Alaskan service. I start diately for Victoria and will forward written report from San Francisco. No should be dispatched without largely increased force and medical officer. G gun required.

WM. GOUVERNEUR MORRIS,
Special A

WASHINGTON, D. C., *July 24,* 1

M. P. BERRY,
United States Collector of Customs for Port of Sitka, Alaska,
Victoria, Vancouver Island, British North America:

Morris reports danger at Sitka unless cutter is dispatched at once. Tel whether you are of same opinion.

H. F. FRENCH, *Assistant Secre*

VICTORIA, BRITISH COLUMBIA, *July 26,* 1

JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.:

Your telegram of the 24th received. It is my opinion that unless an armed is dispatched without delay to Sitka and waters adjacent thereto, the people will be massacred.

M. P. BERRY,
Collector District of Al

Before leaving Victoria I wrote this letter to the Department:

OFFICE SPECIAL AGENT TREASURY DEPARTMENT,
Victoria, British Columbia, July 28, 1

SIR: I have the honor to transmit certain correspondence between Capt. Ja Selden, of the revenue marine, commanding steamer *Wolcott*, and myself, touchi condition of his vessel for Alaskan service.

On the 25th instant the collector of Port Townsend, Wash. Ter., received you gram asking "How soon can steamer *Wolcott* make cruise to the northward." suggestion Captain Selden, who was at Seattle superintending the repairs of his was telegraphed for, in order that he might personally be consulted. On the 2 made his appearance at the Port Townsend custom-house, and in reply to you tion answered, "Not before September 1," which reply was at once telegraph by Collector Webster. Captain Selden then read to us his reply to my letter 24, and reiterated personally the views therein expressed; whereupon I sent t lowing telegram to the Department:

"Captain Selden states '*Wolcott* in no condition for Alaskan service.' immediately for Victoria and will forward written report from San Francisc cutter should be dispatched without largely increased force and medical Gatling gun required."

Captain Selden stated to me, as I was leaving Port Townsend, he would s me another communication upon the subject to San Francisco.

The situation at Sitka is now changed. A vessel stationed there may have work to do. For mere intimidation the *Wolcott* would be an admirable scar but if there is any fighting to be done, or offensive operations to be conducte a vessel of a different class must be selected. My views on this subject we set forth in my report of April 14 last, when discussing the armament and the cutter *Rush*.

Collector Berry is very earnest in his statement of the defenseless condition citizens, who have been left wholly unprotected and liable at any time to b dered by the savage tribes. He does not concur in views of the Departmen "an occasional visit of an armed vessel is deemed all that is necessary," an constrained to agree in this opinion.

A cutter should be stationed permanently at Sitka, unless it is determi abandon that portion of the Territory altogether, and she should be provide a steam launch, as Captain Selden suggests.

Let a vessel go there now, and possibly everything at the surface might ap be calm, and the officer making the inspection might call those who have a this question "alarmists;" but this will not do. The inhabitants of Si

experienced clerks and deputies are retained to carry on the p business properly. But in Alaska, when the fountain head depar usually results in a clean sweep of subordinates. Aside from the routine of collecting the revenue, the collector of customs and his d ties, as matters now stand, are the only semblance of or really th facto law in the Territory.

These reflections do not apply to the present collector, who h mately succeeded to a vacancy caused by resignation, nor to his d ties, for reasons before given. If they prove equal to the occasi is to be hoped more stability than heretofore will be had in their

THE PORT OF WRANGELL.

Wrangell, or more generally known as Fort Wrangell, is situat the north end of Wrangell Island. Illustration No. 1 will give a co idea of the present appearance of the place. The view is pres from the harbor directly in front of the town, with the cutter *W* in the distance.

The military post at Wrangell was established in 1867 and aband in 1870. This garrison cost many thousands of dollars; it had a hospital, good quarters for officers and men, guard-house, bakery, s houses, post well stockaded, stables, and such other buildings a usually found at a one-company post. The erection thereof was n sarily most expensive, yet, notwithstanding the immense sums of m expended, the War Department in 1870 disposed of the whole thi the insignificant sum of $500 or thereabouts. The purchaser William King Lear, esq., sutler and trader at the post and vi Soon after the troops left, at the request of Mr. Lear, the deput lector then stationed there vacated the miserable shell of a bui then occupied as a custom-house and moved into one of the buil of the fort. This building was used and occupied as a custom- and warehouse, free of rent from the year 1870 to 1874, at which the discovery of gold at Cassiar, in British Columbia, caused hou Wrangell to become valuable and in demand. Mr. Lear, in cons tion of the fact he had furnished for a period of four years a building rent free for Government purposes, asked that he be all compensation for the use of one room. Upon the representati Collector Berry, the sum of $30 per month was paid.

In January, 1875, the War Department reoccupied Fort Wrangel stationed troops there, taking possession of all the former building allowing Mr. Lear the sum of $80 per month rent, which he conti to receive under protest until the final abandonment of the post in 1877. Illustration No. 3 shows the fort as vacated by the troops.

When the military regarrisoned the post the deputy collector w rected to surrender his room, which was done. Upon the requisiti Major Berry the Department authorized an allowance of $200 to pu old custom-house in a habitable condition. This was done in Febr of that year, and it has ever since been used for customs purpose is the property of the United States, is in full repair, and answer requirements for office business, but it is at an inconvenient dis from the only wharf and warehouse at the village.

Finding the Indians made a thoroughfare of the premises to and their village, and were stopping constantly in throngs in front o building, intruding their filthy persons and stench even inside the and impeding the public business, I directed Mr. Dennis to constr

pushed northward and eastward on river systems connected with the Dease to a tance estimated at 370 miles, in a region which probably lies beyond the Provinc British Columbia, and in the as yet unorganized Northwest Territory. A promi quartz vein containing gold, silver, and copper has been discovered on McD Creek, and a lode of argentiferous galena on the river Francis or Deloire.

Mr. Arthur W. Vowell, gold commissioner and stipendiary ma trate, also uses this language regarding these mines, for the year 1 in his report to the provincial secretary:

Considering the many difficulties which have beset the miners, and the fact there have not been as many engaged this year, I think that on the whole the re for 1877 are not unfavorable, but rather go to prove that Cassiar stands to-d mining district second to none in the province as regards the number of m employs, its great extent, its prospects, and the fact that it is as yet, except as reg a very limited portion of it, undeveloped.

The miners who have already returned in October of the present y report the discovery of new very rich diggings. They were only covered a short time before the season became too far advanced to w but during the short time they were worked the yield was enormou

Here the miners congregate in large numbers, from 1,500 to 2,00 certain seasons of the year, the number increasing each year, going coming. A large number of them go into winter quarters with In women, hibernate, play cards, and drink whisky until the ice melt the spring, when they return to the mines and try their luck again

The impetus given to Indian labor by employing them and t canoes in the transportation of merchandise has had a very benef effect and added no little to the prosperity and trade of the place the Indian generally spends every dollar earned by him.

The price on the steamers from Wrangell to Glenora Landing, miles, is $40 per ton measurement, whereas the Indian takes it for per ton weight. They deserve to be encouraged in their enterprise, nothing will go further to render them docile and tractable than very fact of their being dependent upon the white man for employm

These canoes are regularly cleared by the deputy collector, who sonally takes an account of every portion of their cargo. This n sitates his being absent from his office, very often for days at a t One officer at this port is insufficient; there should be, as said be another assigned here.

It frequently happens an inspector has to be sent to Karta Klawack, and other points, and the interests of the Government always in jeopardy if temporary inspectors are selected from the good-for-nothing, loafing class of men who are hanging around water-front waiting for an odd job.

The foreign steamers have to be discharged by an inspector; deputy collector can not attend to this. They have to be watche night as well to prevent the illicit importation of foreign merchan as to guard against the surreptitious landing of alcoholic liquors our own ports.

The public business, if attended to at all, should be done prop and the volume here is such that, if not strictly looked after, loss t revenue must necessarily ensue.

Mr. Dennis had his office in good order, and his books, papers, accounts disclosed strict fidelity and attention to business. An exa tion of his collections showed him accountable for the sum of $131. fees and duties. The cash on hand was: Gold, $10; silver and rency, $121.83. As remarked previously, an iron safe is absol needed at this office.

Coastwise merchandise, which is first landed at Victoria and s

McCully appears to be a creditable young person, and I have no reason to d the correctness of his statement.

In case of the successful prosecution of a suit against Baronovich, I would su that the Treasury Department be urged to allow McCully the fullest benefit c law in his character of informer. Baronovich is indebted to McCully for a season's mechanical labor, for which the latter is unable to obtain payment.

Very respectfully, your obedient servant,

S. P. JOCELYN,
Captain Twenty-first Infantry, Command

M. P. BERRY,
Collector of Customs, Sitka, Alaska.
(Through the acting deputy collector, Fort Wrangell.)

Personally appeared before the undersigned, a commissioned officer of the U States Army, and commandant of the military post of Fort Wrangell, Alask Thomas J. McCully, who, being duly sworn, deposes as follows, viz:

From March 12, 1875, to about December 1, 1875, I resided at the trading p Charles V. Baronovich, Karta Bay, Prince of Wales Islands, Alaska, being employ, as cooper, of said Baronovich. About June 25, 1875, the said Char Baronovich brought, or caused to be brought, from Fort Lapwai, in British Colu to his store at Karta Bay, in Alaska, a lot of English-made blankets, in numb more or less. About August 1, 1875, the said Charles V. Baronovich brou caused to be brought, from Fort Simpson, in British Columbia, to his store at Bay, in Alaska, a canoe load of hard bread, flour, and blankets, the said carg sisting of 10 sacks of flour, 4 boxes of hard bread, and a lot of English blanke less than 100 in number. About September 1, 1875, the said Charles V. Baro brought, or caused to be brought, from Fort Simpson, in British Columbia, store at Karta Bay, in Alaska, 60 English blankets.

Of this last lot I am exact as to the number, as the blankets were wet duri voyage, and I counted them as they were exposed in the air to dry.

I am less positive as to the precise dates, as I made no memorandum at th but all the articles enumerated were brought from Fort Simpson to Karta Bay the time I was employed by Baronovich, i. e., between March and December,

I am positive that the United States import duties were not paid by the said C V. Baronovich, or other person, upon any of the blankets, hard bread, or flou tioned in this statement, as the said Baronovich frequently informed me that t duties had not been paid, but that the fact of importation had been conceale the customs officials, and he, the said Baronovich, often remarked to me that was a fool to pay duties in Alaska, as goods could be just as readily smuggl so much saved.

THOMAS J. McCu

Subscribed and sworn to before me, at Fort Wrangell, Alaska, this 12th January, 1876.

S. P. JOCELYN
Captain Twenty-first Infantry, Comma

I certify that in taking the above affidavit paragraph 1031, Revised Army tions, 1863, has been complied with.

S. P. JOCELYN
Captain Twenty-first Infantry, Comma

[Indorsements.]

HEADQUARTERS DEPARTMENT OF THE COLUMBI
Portland, Oreg., February 2,

Official copy (with inclosure) respectfully furnished the assistant adjutant- headquarters Military Division of the Pacific, for the information of the T Department.

O. O. HOWAR
Brigadier-General, Comma

HEADQUARTERS MILITARY DIVISION PACIFI
San Francisco, February 19

Respectfully forwarded to the Adjutant-General.

J. M. SCHOFIEL
Major-G

Copy of communication of commanding officer, Fort Wrangell, to the customs, Sitka, inclosing sworn statement of T. J. McCully, charging Ch

consisting of blankets, silk goods, ammunition, guns, and molasses, etc., to the am of five or six thousand dollars, and intends in a few days to send the canoes, Indians of that place, to the Chilcat country, A. T., to trade those goods. I u stand that Mr. Duncan makes a business of sending goods to Alaska. He has smuggling goods in Chilcat and other places in Alaska Territory for a great nu of years. Had I any facilities at hand, I should have endeavored to captur smugglers, but I am alone on this island, and can not get any Indians for a they being absent from their village. I would further inform you that abou 18th instant three canoes, from Silka and Tacou, called at this port on their w Fort Simpson and Skeena River, British Columbia. I understand that the the latter places loaded with molasses which they purchased there, and are n their way home.

"I am, sir, very respectfully, etc.,

"A. MILLETICH,

"*Acting Deputy Collector and Inspect*

While reading the above communication a fleet of eight canoes hove in si the custom-house, ten or more miles to the westward, heading north through of Clarence Straits. Believing it to be a Hydah fleet on their way to Wrangel little attention was paid to their movements for the space of an hour, when, fi that only one, the leading canoe, headed toward the port, I concluded that it w smuggling fleet, and thereupon proceeded to inaugurate a chase with such me I could command.

There being no steamer of any kind in the harbor, I went to the Stickine I town, and, after two hours' delay, succeeded in employing a canoe to chase. waiting an hour for the head Indian to collect a crew, he refused to go. A hour was spent, and I succeeded in employing a canoe with twelve paddl steersman, and got them off with a guard of troops furnished by Captain Jo commanding post at Wrangell, and Deputy Collector Dennis, under orders to the fleet to the Northwest Stickine Sands, and if finding that the fleet had e and was any distance out in Prince Frederick's Sound, to abandon the chase, reason that the canoe was too light to venture. My only hope was to catch th the sand, waiting for the flood tide to get over into the sound, or that they mi into camp, but in neither instance was I right; the tide was a neap or hal which left the channel open, and, with a half gale, they pushed on.

The elements seemed to conspire against my success, because, in less th minutes after leaving Wrangell, a strong wind, rain, and fog came in from th which operated seriously against the expedition, which, by the peculiar con tion of the islands, made it favorable for the smugglers. Nevertheless, agai storm, the canoe traveled about twenty miles in less than two hours. Fin impossible to overtake the running fleet in less distance than one or more h miles, Mr. Dennis gave up the chase.

In conclusion, I must say that it was only by arousing the cupidity of the I that I was enabled to get a canoe at all; viz, I paid them $26 to run out, and to pay for the capture of one canoe $100, and for the fleet $500 cash.

I am, sir, very respectfully, your obedient servant,

M. P. BERRY, *Coll*

Hon. B. H. BRISTOW,
Secretary of the Treasury, Washington, D. C.

[Indorsement.]

JULY 28,

Respectfully referred to Special Agent W. G. Morris, San Francisco, Cal., f investigation as he may be able to make and report result of same.

GEO. F. TALBOT, *Sol*

I personally interviewed Major Berry and Mr. Dennis upon th ject-matter of this communication. They pointed out the spot where the canoes first hove in sight and their avenue of escap it was very plainly seen how easy it was to prevent capture und circumstances.

The trade with the Chilcat Indians has until within a very few past been most valuable, they having the richest, most costl valuable furs of any tribe in southeastern Alaska. Latterly not been so much sought after, owing to the low price of furs.

Our British neighbors have always been keenly alive to the v

of all kinds will be traded and given away. The usual amou hoochenoo will be consumed. This will be a rich field for the I catlah Indians to work in, and unless we have a revenue-cutter at this time the coast will be swarming with Hudson Bay blanket other foreign goods.

This very fiasco of a chase demonstrates the necessity of launches in these waters. If there had been a cutter cruising i Alexander Archipelago the Indians would not have dared to atte voyage of the kind. A steam launch could have easily overh them and thousands of dollars worth of goods confiscated.

For some unexplained reason the accounting officers of the D ment disallowed the sum, $26, paid by Collector Berry for the h the canoe, and he was compelled to pay for the luxury out of hi pocket. He supposes it was upon the Mongolian principle o catchee, no pay." At all events, such rigorous stoppages are no ducive to zeal upon the part of customs officers, and this ex before them will cause them to pause before they again incur expense.

ABOLITION OF THE CUSTOMS DISTRICT OF ALASKA.

The discussion of this question is approached with no little del inasmuch as the honorable Secretary, in his annual report at the mencement of the second session of the Forty-fifth Congress, use following language:

Since the withdrawal of the troops from Alaska last spring the management Territory has practically devolved upon the Treasury Department. The only who could exercise any authority were the collector of customs at Sitka and I uties stationed at other points within the Territory, the duties of the officer seal islands being confined exclusively to the protection of the seal interests. feared that the sudden withdrawal of the troops might result in a conflict betw whites and the Indians; but thus far little disturbance has occurred. The whi lation at Sitka is very limited, and the expense of maintaining customs office and at other points within the Territory has aggregated, within the past tw $17,418.32, while the receipts from customs have, during the same period, be much less. It is, therefore, recommended that the port of Sitka be abolished

It is known by me, however, that De Ahna, after one day's expe as collector of this district, did make a report to the Department mending the district be abolished, and that the honorable Sec indorsed the report favorably. I have seen a telegraph from Go McCormick to De Ahna to this effect.

This political gasconade, De Ahna, puffed up with his own sw self-conceit, knows as much about the collection of the revenue district of Alaska as Sitting Bull does about the Sermon on the I

It has been previously shown that the collections made in the d since its establishment have been about one-half of the exper running it, and it is respectfully urged that this district must considered as one of revenue, but essentially as one of protectio

It is evident this recommendation of the honorable Secreta made on the score of economy, but it is difficult to conceive wha ticular saving can be made. The Alaska officers do not now greater compensation than their services are worth; in fact, I th the deputies are much underpaid. A residence in this Territ present is a banishment from all the refining influences of civiliz and especially at the western ports amounts almost to a condi servitude. Men in the search of gold will brave any danger an mit to any hardship, but for the meager salary paid a customs

the United States, William H. Seward, Secretary of State; and His Majest Emperor of all the Russias, the Privy Counsellor Edward de Stoeckl, his E Extraordinary and Minister Plenipotentiary to the United States;

And the said plenipotentiaries, having exchanged their full powers, which found to be in due form, have agreed upon and signed the following articles:

ARTICLE I.

His Majesty, the Emperor of all the Russias, agrees to cede to the United S by this convention, immediately upon the exchange of the ratifications there the territory and dominion now possessed by his said Majesty on the contin America and in the adjacent islands, the same being contained within the geog ical limits herein set forth, to wit: The eastern limit is the line of demarc between the Russian and the British possessions in North America, as establish the convention between Russia and Great Britain, of February 28-16, 1825 described in Articles III and IV of said convention, in the following terms:

"Commencing from the southernmost point of the island called Prince of Island, which point lies in the parallel of 54 degrees 40 minutes north latitud between the 131st and 133d degree of west longitude, (meridian of Greenwich said line shall ascend to the north along the channel called Portland Channel, as the point of the continent where it strikes the 56th degree of north latitude; this last-mentioned point, the line of demarcation shall follow the summit mountains situated parallel to the coast, as far as the point of intersection 141st degree of west longitude, (of the same meridian;) and finally, from th point of intersection, the said meridian line of the 141st degree, in its prolong as far as the Frozen Ocean."

IV. With reference to the line of demarcation laid down in the preceding a it is understood—

"1st. That the island called Prince of Wales Island shall belong wholly to R [now, by this cession to the United States].

"2d. That whenever the summit of the mountains which extend in a dir parallel to the coast from the 56th degree of north latitude to the point of inter of the 141st degree of west longitude shall prove to be at the distance of mor ten marine leagues from the ocean, the limit between the British possessions a line of coast which is to belong to Russia, as above mentioned (that is to sa limit to the possessions ceded by this convention), shall be formed by a line p to the winding of the coast, and which shall never exceed the distance of ten m leagues therefrom."

The undetermined limits and location of this boundary line ha times been near bringing about serious disputes. Sir Edward Beh in his voyages, relates the following:

In 1834 an expedition was fitted out (from Fort Vancouver) to establish a tr post on the river Stikine, which falls into Clarence Straits, and is situated north, 131° 10′ west; but the Russians, having notice of their intention, had ere blockhouse, and placed one of their corvettes at the mouth of the river, to p their effecting their object.

By the treaty of 1825 (vide appendix) completed with the Russian Govern articles 3, 6, 7, and 11, it was agreed that the Russians were to occupy from outward boundary, viz, 54° 40′ north and 131° to 133° west, a parallel band miles above 54° 40′ north, but clearly reserving the right on the part of the B traders to "freely navigate all the rivers which crossed the line of demarca And as it was, moreover, a prominent feature of that treaty that neither party, any circumstances, should have recourse to force without first transferring th pute to their Government, a formal appeal was made to Baron Wrangel, at that governor of Sitka, but without success.

It is probably fortunate that this article tied the hands of our spirited northw or the question of blockade would have assumed a very different feature. B occurrence the loss to the company was assumed at £20,000, but as the Russian ernment disapproved of the conduct of their governor, I am informed the qu was satisfactorily concluded and expenses recovered.

Major Berry, when at Sitka, imparted to me the following informa

In 1862, when the gold mines on the Stikine River were first di ered, the Russian authorities dispatched an officer of engineers whaleboat to the Stikine to see whether the miners were taking from Russian territory. Having ascertained the miners were at 10 marine leagues inland, he returned and so reported.

Prof. William P. Blake, in his journal of an exploration of the Stikine, uses the following language:

Under the orders of Admiral Popoff, of His Imperial Russian Majesty's navy, an expedition for the survey of the Stickeen River was organized by Lieutenant Bassargine, commanding the corvette *Rynda*, when at Sitka in 1863.

The corvette steamed from Sitka to a convenient anchorage a few miles below the mouth of the Stickeen, and near the south shore of its broad estuary. The party detailed consisted of Lieutenant Pereleshin, Mr. Andreanoff, a Russian engineer in the service of the Russian-American Company, six Russian sailors, expert oarsmen, and the writer, who accompanied the party as a guest, for scientific purposes. The commander's gig, a boat sharp at both ends and modeled like a whaleboat, was selected as best adapted for the purpose, and was fitted out with mast and sail, a long line for towing, and was provisioned for two weeks. An Indian, named Jack, accompanied us as a guide.

I infer these two expeditions must have been one and the same, and that some confusion exists in regard to the date.

In 1867, before the cession of Russian America to the United States, the Hudson Bay Company, learning that the sale was about to take place, employed Professor Leach to establish the line where the 10 leagues ended, and had at that time nearly completed building a trading post at Warm Springs Creek, about 35 miles up the Stikine, direct. Professor Leach went farther up the river to a place called Berrys Bar, which he fixed as the termination of the 10 leagues. The Hudson Bay Company stopped building immediately at Warm Springs, and moved their post to Berrys Bar. This man Berry died of small-pox in 1862, and was buried, and when Leach fixed the boundary line he found his grave to be one-half in Russian America and one-half in British Columbia.

This was the accepted boundary until the discovery of the gold mines of Cassiar, some four years since, when the Canadian authorities sent a customs officer to control the trade of the Stikine, who located the custom-house in the Hudson Bay Company buildings near Berrys Bar, they having abandoned that trading post.

By consent of the collector of customs of the district of Alaska, he moved his office down the river about 25 miles, to a point some 2 miles below the mouth of Warm Springs Creek, at the foot of the great glacier. This was done for the sake of comity, the Canadian deputy promising to inform the deputy at Wrangell of smuggling of liquor into Alaska by Indians, etc.

He remained there only one year, and then moved his custom-house to Glenora Landing, about 160 miles from the mouth of the Stikine River.

During the year the custom-house was located at the foot of the great glacier, the gold commissioner of Cassiar, a factor of the Hudson Bay Company and an English surveyor, located a town site at the head of tide water, on the great bend of the Stikine, claiming it was in British Columbia, made application at the land office at Victoria, and entered it.

The following correspondence is now inserted as bearing directly upon the subject-matter:

CUSTOM-HOUSE, SITKA, ALASKA,
Collector's Office, June 15, 1876.

SIR: I have the honor to inform you that the Canadian customs authorities have removed their flag and office up the Stickine River to a place known as Glenora Landing, the same being above the supposed boundary line some 60 miles, and about 90 miles from and above the post of last year.

One A. Choquette, alias "Buck," last year settled and built a trading post some 2 miles above the customs post, which is undoubtedly in the Alaska line. The person referred to is believed to sell liquor to Indians, and is the source from which the Alaska Indians derive large supplies of foreign goods. He pays his revenue to the Canadian authorities.

1. Shall I notify Choquette that if he remains where he is located that he r pay duties on his foreign invoices and be subject to the restrictions that other chants in Alaska are subject to?

2. Shall I seize him without preliminaries?

3. Or notify him and give him a fixed time to move his merchandise farther inl then seize him at the expiration of the date?

Having had conversation with him, I am under the opinion that nothing wil effected unless I am ordered to act advisedly, therefore would request that my or on the subject be clear and positive.

I am, sir, respectfully, your obedient servant,

M. P. BERRY, *Collecto*

Hon. B. H. BRISTOW,
Secretary of the Treasury, Washington, D. C.

To which the Department replied as follows:

TREASURY DEPARTMENT,
Washington, D. C., July 14, 187

SIR: Your letter of the 15th instant is received, in which you inform the Dep ment that one A. Choquette, alias Buck, has established a trading post within limits of the Alaska purchase, and there furnishes goods to the Indians of Ala and is supposed, also, to sell them liquor. This post was first set up some 2 m above the customs office of the Canadian authorities; but you state that tl authorities have removed their flag and office up the Stikine River to a place kn as Glenora Landing, which is supposed to be 60 miles above the boundary line, 90 miles above their post of last year.

The position of Choquette's trading post, therefore, falls within the recogni limits of the Territory of Alaska, and you inquire whether you shall notify Choqu of his obligation to pay duties on his goods, if he remain where he is, or direct to leave within a certain time, and make seizure of his goods if the removal is effected.

You are advised to notify the trader to pay duties on his goods, or to remove tl within a definite time without the Territory. As, according to your report, all goods are a foreign importation, if the duties on them are not paid, or if the go are not removed from the Territory within a reasonable time, it will be incumb upon you to make seizure.

Very respectfully,

LOT M. MORRILL,
Secretary of the Treasur

M. P. BERRY, Esq.,
Collector of Customs, Sitka, Alaska.

Collector Berry then wrote the following letter:

CUSTOM-HOUSE, SITKA, ALASKA,
Collector's Office, September 19, 187

SIR: In accordance with instructions received at this office from the honorable retary of the Treasury of the United States, under date of July 14, 1876, it beco my duty to notify you to remove all of the foreign goods, wares, and merchandis your possession and kept for sale or trade by you within the jurisdiction of United States, beyond the limits of Alaska Territory, or pay the legal duties on same.

I am further instructed by Department letter of date above referred to that, shc you decline to remove such foreign goods, wares, and merchandise in your posses on receipt of this notice of removal, that I fix a time for such removal to be cons mated, and that after the expiration of the time so fixed and specified that I proc to search for and make seizure of any and all such goods, wares, and merchan found in your possession and remaining within the limits of the Territory of Ala upon which the duties due the United States have not been paid.

In consideration of the difficulties to be expected from the early closing of the n gation of Stikine River, I shall fix the time for your removal to be completed made at two weeks after the opening of the river for canoe or steamer navigatio the spring of the year A. D. 1877, provided that you decline to and have not paid duties above referred to.

M. P. BERRY,
Collector of Customs, District of Alask

Mr. A. CHOQUETTE,
Merchant, Stikine River, Alaska Territory.

Subsequently a second letter was written Choquette from Wrangell, a copy of which is not available, but I learn it was to the effect of suspending the order of removal above given by Major Berry. There were some reasons for this which do not appear of record, and I believe the American customs authorities thought it better to permit Choquette to remain at his post without molestation until this question of the boundary line was determined by higher power. And here I think they were quite right and displayed commendable prudence, for nothing is to be gained by unnecessary irritation when either party may be right or wrong in the premises assumed. The trader, Choquette, still retains his trading post at the disputed point.

Major Berry subsequently wrote the following pointed letter to the Department:

CUSTOM-HOUSE, SITKA, ALASKA,
Collector's Office, May 21, 1878.

SIR: For the information of the Department, I have the honor to lay before you the following, viz:

One Mr. Hunter, civil engineer, has, by the authority of the Canadian Government, made survey of the Stikine River with the following result, viz: Commencing at what he settled upon as the true mouth of the river, he has meandered the same up to the old Hudson Bay post, distance he did not inform me, from which point he took observations and located monument showing the eastern end of the 10 marine leagues to be some 7¼ miles down the river below the said abandoned house and about 25 miles above Choquette's store, situate on the bank of the river.

Returning the engineer then selected what he designates as the summit of the coast range, the same being 23¼ miles from the mouth of the river by its meanders and only 16 miles on air line from the same point, and some 12 miles below the store of Choquette.

The twenty-third-mile monument is erected just below the site surveyed for a town last year by the provincial gold commissioner and other officers of British Columbia.

In connection herewith you will permit me to say that every representation will be made to our Government of the worthlessness of the strip of country lying between the 16-mile monument and that one at the end of the 10 leagues. To persons passing along the river it does not look at all desirable; nevertheless, if it is considered of no value by our neighbors, why have they not only surveyed a town, but their citizens have applied to the land board of British Columbia for entry of many quarter-sections of land (their squatter system being somewhat different from that of ours, giving them privilege of entry before settlement), proves that the country is held in more estimation than their citizens and newspapers represent. Therefore, from my standpoint, having some knowledge of the present and future value of the country to the Government, would ask that nothing less than the 10 leagues be considered as the boundary line.

I am, very respectfully, your obedient servant,

M. P. BERRY, *Collector.*

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

Mr. Hunter is connected with the Canadian Pacific Railway survey. He is a gentleman of repute, and is represented to be well versed in his profession. This survey was made early in the spring of 1877, Mr. Hunter having ascended the Stikine on the ice, the river not being open to navigation that year until May 27. I met him subsequently in Victoria, and conversed with him in reference to the nature and result of his survey. He was unable in advance of making his report to his Government to place me in possession of any facts I could put to public use.

Hon. Amor De Cosmos, member of the House of Commons of Canada from Victoria district, at the last session of Parliament called for the Hunter report, but it has not been published, and Mr. De Cosmos, in a letter to myself, dated at Victoria, October 1, says: "Mr. Hunter's report has not yet come to hand—possibly will not until after Parliament shall have met. As soon as I receive a copy I will forward it."

This is no new question. Brig. Gen. O. O. Howard, U. S. A., in his report of a tour of inspection of Alaska, made to the headquarters of

the Military Division of the Pacific June 30, 1875, used the follc language:

EXPEDITION UP THE STIKINE—CUSTOM-HOUSE; ITS LOCATION—BOUNDARY L DOUBT—GLACIERS, ETC.

The next day, by the courtesy of Captain Irving, the owner of the smal steamer *Glenora*, having arranged to pay merely the extra expense of fuel, I to party up the Stikine River as far as the boundary between our territory and Columbia. No building is yet erected for the custom-house. The place English custom-house officers' tents is supposed to be selected within the line. Some of our shrewd frontiersmen say that it is not 10 marine leagues fr sea, as it should be, there being really doubt as to the summit of the coast of mountains. I took a copy of the statement of the boundary line as publi an English journal. It seems now to an observer of little consequence amon rough mountains where the exact line of division really is, but remember trouble the settlement of the channel question gave us at Vancouver Island it of sufficient importance to recommend that the attention of the proper dep be called to the existing doubt—not plainly settled by the treaty—that the li be definitely fixed.

I submit a tracing of a map (illustration 4) of the line as we stand it, copied by permission of General Howard from the officia at the headquarters of the Department of the Columbia.

Our provincial friends in British Columbia are deeply interes the prompt settlement of this vexed matter, and their represent in Parliament have more than once debated the question. In now will be found the report, as copied from the Hansard, of a d in the House of Commons at Ottawa in 1875, which is peculiarly esting, showing the lively interest taken by those cognizant o principal facts:

Mr. Roscoe moved an address to his excellency the governor-general, prayi to call the attention of Her Majesty's Government to the necessity of havi boundary line between British Columbia and Alaska as soon as possible defi surveyed.

Mr. Roscoe said if he was to move the resolution of which he had given merely with the remark that the commercial and other interests of British Co required the boundary line between that province and Alaska to be defined and as soon as possible, he did not suppose there would be any opposition to the but he thought he might fairly assume that the house would wish, if not ex be informed, firstly, as to the nature of any questions which may arise or hav concerning that boundary line, and, secondly, as to what had occurred whic opinion, rendered an immediate settlement of that question necessary. If the North America be referred to, it will be seen that the Territory of Alaska chiefly of that part of the continent lying to the west of the one hundred an first degree of west longitude, and also of a narrow strip of the coast ex from the sixtieth to the fifty-sixth degree of north latitude. As the sixtieth is the boundary line between British Columbia and the Northwest Territ only part of the boundary line of Alaska to which his motion had referenc boundary line of this narrow strip. This was settled by the treaty betwee Britain and Russia of 1825. Previous to that date there had been endless between the various fur companies, which represented the interests of their tive countries in this part of the world, and when a settlement was made in was found that, while the Russian-American Fur Company had made variou ments along the coast, the British companies had acquired the whole interio country. A settlement of the boundary line was therefore made on the und ing that Russia should keep a narrow strip of the coast, the boundary of wh defined to be the range of mountains running parallel to the coast, but it is stipulated that wherever this range of mountains is at a greater distance leagues from the coast, then the boundary line shall run at this distance. this territory was sold by Russia to the United States, but of course in any c concerning the boundary line we have to go back to the original treaty of 1 is doubtful, however, whether this question would have arisen but for the ery of gold in this part of the Dominion. As long ago as 1862 gold was the Stikine River, and since that time there have been prospecting parties i of diggings in this region, and two years ago these were discovered at a plac Deas Lake, situated about 80 miles east of the head of navigation on the River.

recently pronounced in favor of nationality and a new departure, ought to be ing to make a new departure in the interest of Canada to enlarge our dominie get more land by which the nationality could be extended.

Hon. Mr. Blake. What about the people?

Hon. Mr. De Cosmos said the people would soon be added, if we had the land the plan he proposed there would be no divided sovereignty. He believed, wh looked at the mountainous character of this belt, that it would cost nearly as m make a survey of it, to both Governments, as it was practically worth at pr When they came to ascend mountains 3,000, 5,000, and 14,000 feet high to form a b ary, it would be found most expensive. With reference to the convention be Russia and Great Britain of 1825, and the subsequent treaty of Washington the free navigation of the Stikine River, he would remark that there were two rivers, the Yako and Chilka, which might yet be found useful as a means of ca the mineral wealth of British Columbia north of the 300-mile belt out to sea. it will be necessary in the interest of British Columbia to enter into further ne tions with the United States in order to define our rights. In addition to t mineral discoveries should be made in any part of this belt, and from the geol formation there seemed to be no doubt such would be made, it would be foun American claims on the Alaska side would run into Canadian territory, causin less disputes. He moved in amendment to the resolution before the house t after the word "survey" be struck out, and the following added: "and the desir of acquiring that portion of the territory of Alaska extending northwestwardl 54° 40′ north latitude to the meridian of Mount St. Elias."

Hon. Mr. Mackenzie said it was all very well for his honorable friend to bri subject up. It was one of very great interest, and had engaged the attention Government for some time. Negotiations had already been had through the official channel with the Government of the United States on this subject. one, however, that would not be promoted by the passage of his honorable f motion here, and the amendment by the honorable member behind him (De C was, of course, entirely inadmissible. A motion of that kind could not serio proposed in the House. He (Mr. Mackenzie) was quite aware that the real dif at present was simply the Stikine River. Under the convention of 1825 the bo had in the plans exceeded a distance of 10 leagues from the coast, and the re culty existed in taking these 10 leagues from the mouth of the river instead of f ing the ridge of hills to a point where it strikes the river. If that point we determined, no serious inconvenience would arise anywhere else, and to get tha determined at as early a period as possible the Government had already been di their attention. He hoped his honorable friend would be satisfied with this ex tion and withdraw his motion. As for the amendment, it was quite inadmiss

Mr. Bunster said that, having heard a good deal from the miners with re that region, he claimed to have some knowledge on the subject before the Hou was sorry to see the honorable gentleman from Victoria move an amendment the premier had declared to be inadmissible, because the honorable gentleman (mos) considered him a constitutional authority. He claimed that this vexed q which interfered with the development of the rich mines of that country, sh settled. The hardy miners had discovered and developed exceedingly rich m Cassiar. They had been badly treated by unprincipled American officers, w taken and seized their boats while sailing under the Dominion flag. They h obliged to pay heavy tolls, amounting to $4,000 or $5,000, for which tolls no were made to the American Government. That was a matter which require looked into by the administration of the day and which should be brough the notice of the American authorities. The official to whom he had allud now undergoing a trial in Oregon for fraud on the American Government, wh thought, was sufficient proof that he had wronged those Canadians who had the expense of constructing a boat for the navigation of the Stikine Rive sooner this vexed question was settled the better.

Mr. Thompson (Cariboo) did not wish to make any remarks after what h said by the premier. He was well aware of the great importance of havi question settled as soon as possible. During the ensuing season, perhaps, larger number of miners would go to the Stikine River than the 2,000 spoke the mover of this resolution, and should these vexatious annoyances contin imposed, the more excitable among them, though they might be generally pe might resent such interference, and thus bring about complications between countries. There was another question which had recently been brought his notice. The Indians did not understand the divided jurisdiction. Th very numerous, and spent the winter months on the coast, and during the fished in the Skeena River, working also for the miners. These Indians h accustomed to roam at large over that country, whether by water or by la they could not understand the divided jurisdiction when told by American they were on American soil and by British officers they were on Canadian

order to prevent collision with those Indians who are usually peaceable, but when under the influence of liquor were very excitable and disposed to quarrel with the whites. Although the liquor traffic was nominally prohibited by the American authorities, the Indians could get all they wanted in Alaska, and if they could not they were ingenious enough to make it themselves. They made rum from molasses with nothing but a tin kettle and a coil of seaweed. By fastening the seaweed to the spout of the kettle, they were able to distill liquor. This proves the advancement of civilization among the untutored savages on that coast. He had no doubt the resolution and amendment would be withdrawn. At the same time he thought it had done good by bringing this question before the notice of the House and opening the eyes of members to the vast capabilities of our great Northwest.

Hon. Mr. De Cosmos withdrew his amendment.

Mr. Roscoe. As the Government have stated that they intend to do all that is necessary in this matter, I will willingly, at the request of the honorable premier, withdraw my motion.

The resolution was withdrawn.

But the subject was not permitted to lie dormant subsequently; hence we find the following proceedings, which are taken from the Port Townsend Weekly Argus of May 3, 1878:

MORE ABOUT ALASKA—WHAT OUR COVETOUS BRITISH NEIGHBORS THINK.

We quote the following from the last issue of the Victoria Weekly Standard. It is from the proceedings of the House of Commons, and shows that the ideas we have heretofore expressed relative to Alaska's real value are indorsed and shared by others to whose opinions a great deal of weight must be attached:

"Mr. De Cosmos moved for a copy of the report, with accompanying map, of the engineer who was employed last year in determining the probable boundary line between British Columbia and Alaska, and also a copy of his instructions, with a copy of the treaty or convention between Great Britain and Russia respecting the said boundary. He said he considered that his information ought to be placed in the sessional papers, to give every honorable member of this house a clear idea of our relation with the United States, so far as the boundary line of Alaska was concerned. It was necessary that this boundary should be defined to prevent a conflict in the civil and criminal jurisdiction of the two countries. There was at this moment a great excitement in British Columbia with respect to mining, and valuable quartz lodes had been found on the Alaska side of the boundary. If, at any time hereafter, quartz lodes were found near the supposed boundary, it might create more or less excitement of an unpleasant character between the two countries. It was necessary that, in connection with the boundary, on the Stikine River more particularly, an arrangement should be made between the two Governments to determine a certain point as the limit of their respective jurisdictions. He was assured that at the American town of Wrangell, situated opposite the mouth of the Stikine River, in Alaska, sales were made to men employed on the British side of the Stikine during the year to the amount in round numbers of $100,000 worth of merchandise. When he drew the attention of the Government, and especially of the honorable the minister of customs the other day, to the duties paid at Stikine, it was with the view of ascertaining whether some evidence could be obtained to corroborate the statement made to him by steamboat captains as to the trade on the Stikine. By the nondefinition of the boundary, even temporarily, by the two Governments, this trade was thrown into American hands instead of into British Columbia hands. He was assured that, if the boundary proposed by Mr. Hunter, who was sent there by the Government last year, were adopted, and a custom-house station placed there, Canadian steamships would proceed there, and the miners who visited them during the winter season would make their headquarters on the British side of the line. As the matter was now, they were really contributing to build up the American side and to the support of American steamers passing from Portland to Alaska, and carrying Oregon produce, instead of British steamers which might pass the mouth of the Stikine into British Columbian territory. He hoped the Government would bring down Mr. Hunter's report and maps, and any additional information which would show the outline of Alaska in front of British territory, the inland included.

"Mr. Bunster, in rising to second this motion, said it would have afforded him much greater pleasure if the motion had been for the purchase of Alaska. Honorable gentlemen might laugh, but looking at the matter from a national point of view, he fully meant what he said from his knowledge of the country, that the Territory of Alaska possessed a more genial climate than Ottawa, notwithstanding its latitude, while its natural resources and capabilities were more valuable than people had any idea of. As early as the months of January and February, gardening operations

were commenced. He questioned very much if they could do that in Ottawa. V tation was rapid during the summer season, but he must acknowledge not so r as here at the capital. When honorable members of this house sneered at Ala he had a right to speak from his own personal knowledge and tell them they mistaken; and the day was not far distant when, from the geographical positi this country, they would see the force of his remarks on this subject. They c not but recognize the great fact that British Columbia was the center of the Br Empire, between Australia, Europe, and Canada. Hence he felt that the prov occupied a proud position, and that it was the duty of every British Columbia keep his fellow-countrymen here well informed on British Columbia. He rememb when Sir John A. MacDonald brought British Columbia into the Union, much to detriment, because the contract was not carried out, that it was considered a fo bargain, but to-day the Americans felt proud of their Alaska bargain. Seven lions in cash were paid for that, but not a dollar was paid for British Colum Let the house contrast the difference and see what a mistake Canada made du the Crimean war in not laying hold of the country. The lease of Alaska was than enough to pay $1,000,000 annually. It was the best investment the Un States had ever made."

From the debates and letters produced it will evidently be seen w importance is attached to this question by Canadian legislators others familiar with the situation.

A case arose while the Hon. David Eckstein, now consul at Ams dam, was our representative in a similar capacity at Victoria.

One Peter Martin, a graceless vagabond, had been tried in the co of British Columbia, before one of the puisne judges, Hon. H. P Crease, for felony, was duly convicted, and sentenced to a term imprisonment in Victoria jail. While being transported in custod two British constables he made his escape from the canoe in which was confined, coming down the Stikine, and jumped ashore. Seizi gun, he proclaimed himself on American soil and a free man, and de the authority or power of the officers to convey him any farther. constables, doubtless revolving in their own minds the uncertain this boundary-line question, gave their Government the benefit of doubt and incontinently knocked the prisoner down, ironed him, landed him in quod at Victoria jail. He was subsequently tried this attempted escape, convicted, and sentenced to an additional of imprisonment. Mr. Eckstein handled the case in an able man and it was the subject of much diplomatic correspondence. The gro assumed by Consul Eckstein was that the sovereignty of the Un States had been invaded, and although it was really a matter of d as to whether the territory where Martin jumped ashore was actu a part of the United States, still, in view of the fact that it had erally been considered as such (this being before the Hunter sur the Canadian authorities gracefully surrendered the malefactor, an was set at large.

Doubtless this case influenced the mind of the Hon. Mr. De Co when he used this language: "It was necessary that the boun should be defined to prevent a conflict in the civil and criminal j diction of the two countries."

Aside from any conflict of jurisdiction, the interests of law and o society, good morals, and safety of the public weal, as well as the ervation of the peace, demand that no such state of uncertainty hang upon the border of the two countries as regards the punishme crime. Every rascal and thief in the country will avail himself of state of affairs; and while the action of Consul Eckstein in the M case was praiseworthy and that of the Canadian authorities to be mended, there was turned loose upon both communities one of the desperate men on this whole northwest frontier. His career of c however, has been temporarily checked, for he is now incarcerated a

FORT WRANGELL, *July 11, 187*

DEAR SIR: I will take it as a personal favor if you will bring this matter to notice of our Government as soon as possible, and if possible to get instructio as to send by the next California. Of course this can only be done by using the graph. As soon as the water falls the restrictions imposed upon us will drive ev thing but Canadian vessels from this river. Of course this is the object of Dominion authorities. I think our Government might at least demand a suspen of the restrictions until the matter can be discussed, as the full and unrestri right has been heretofore enjoyed by American vessels coequal with Canadian. attending to this you will place me under renewed obligations.

Yours, truly.

JOHN C. CALLBREAT

Maj. W. G. MORRIS.

No. 1. File 320 of 1878.

OTTAWA, *May 18, 18*

SIR: In reply to your letter of the 25th instant, I beg to inform you that it is trary to the coasting regulations for United States steamers or vessels to unload of their cargo at the first Canadian custom station on the Stikine River, and going higher up and landing the remainder to return again and reload what has unladen and return therewith to the higher point. This course is not allowe Canadian vessels in any similar circumstance in the United States. The ste might properly take freight for the two points and be allowed to land the quan consigned to each, but no foreign vessel has the right to reload freight once la in Canadian territory for delivery anywhere else in the Dominion, and if that p tice has really been allowed by the custom officials it must be discontinued at o

The general question to the right to navigation by both nations is not ope question, but that right must always be exercised with due regard to customs and regulations.

I have the honor to be, yours, etc.,

J. JOHNSON,
Commissioner of Custo

I wrote as follows to Mr. Callbreath:

OFFICE SPECIAL AGENT OF THE TREASURY,
Portland, Oreg., July 23, 18

SIR: I am in receipt of your communication, signed also by Benj. Stretch Capt. Chas. H. Low, dated Glenora, July 6.

I fully appreciate all the difficulties under which you labor and the obstacles w are being placed in your way by Canadian customs officials in the prosecuti your business. I can see, however, no way to relieve you. The rule laid dow Mr. Johnson, the Canadian commissioner of customs, is the law. The trea Washington guarantees to the subjects of Her Britannic Majesty and to the cit of the United States the free navigation of the Stikine River, "subject to any and regulations of either country within its own territory not inconsistent such privilege of free navigation."

The Dominion Government has its own laws governing its coasting trade, an can not directly or indirectly violate them. Mr. Johnson is correct when he the privilege you seek would not be accorded Canadian vessels by the United St

Our customs regulations relating to the coasting trade are very rigid, and u no circumstances would a foreign bottom be permitted to engage in the trad desire.

The only way out of the difficulty is for you to transfer the title of your boat British subject. This, however, should be done with caution, for should the St trade die out you would not be able to again procure American papers for your without a special act of Congress.

The verbal instructions of Mr. Hunter in regard to the point on the river w freight must be landed involves quite a different proposition.

The boundary line between Alaska and British Columbia is the same as laid d in the convention of 1825 between Russian America and British North America is vague and undetermined, and will always remain in dispute until the respe Governments settle the question by joint commission and survey.

I have devoted no little time and attention to this matter, and shall devote a portion of my forthcoming report upon Alaska to its discussion and endeav impress upon Congress the necessity of immediate action.

I presume the point settled upon by Mr. Hunter is that located by Mr. Hunte railway engineer, in his recent survey. The report of the latter has not yet re me, but I learn casually he has run the line much farther down the river tha heretofore been supposed to be the boundary line.

When the Dominion Parliament was prorogued on the 10th of May last, Lord Dufferin used the following language: "I am happy to be able to state that, pending the final settlement of the question of boundary, a conventional line has been adopted by my Government and the Government of the United States between Alaska and British Columbia on the Stikine River."

Whether this is in accordance with the Hunter survey I am unable to inform you, but will write to Washington for information, and when reply is received will duly notify you.

As you have specially asked me to lay your grievances before our Government, I shall this day send your correspondence and a copy of my reply direct to the Secretary of the Treasury.

I have given you my view of the case, and in the meantime would advise you to let matters remain in statu quo until the Department can be heard from.

Your suggestion about using the telegraph is impracticable. The Department would not act unless the whole case was properly presented, and this can only be done by transmitting all the papers.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

JOHN C. CALLBREATH, Esq.,
Wrangell, Alaska.

On July 24 I transmitted originals and copies of the whole of this correspondence to the Department, and requested that I be informed of the nature of the "conventional line" alluded to by Lord Dufferin. Up to the present date no answer has reached me, and I have been informed by Captain Stretch that nothing has been received in Alaska from the Department.

I close this part of the report with the earnest hope that Congress and the English Government may both realize how important it is to determine this controversy as soon as practicable. A more kindly feeling toward our Canadian neighbors has never animated the breasts of the American people than at the present time, and the following graceful tribute, paid by the Earl of Dufferin in the concluding remarks of his farewell address to the people of the Dominion, shows how amicable are our relations and how so eminent and educated a man regards our nation, with whom he has been so prominently and socially connected for the past four years. Lord Dufferin said:

However earnestly I may have besought you to be faithful to your native land and to estimate at its proper value your birthright as Englishmen, it is almost with equal persistence that I would exhort you to cultivate the most friendly and cordial relations with the great American people. A nobler nation, a people more generous or more hospitable, does not exist. To have learned to understand and appreciate them I esteem as not least of the many advantages I have gained by coming to Canada. Of my own knowledge I can say that they are animated by the kindliest feelings toward the Dominion, and I can not doubt but that the two countries are destined to be united in the bands of an unbroken friendship. Nor can I conceive a more interesting or delightful task in store for the philosophical historian than to record the amicable rivalry of such powerful and cognate communities in the path of progress; the one a republic, indeed, but where the authoritative preeminence assigned to elect of the people and the comparative freedom of the executive from parliamentary control introduces a feature akin to personal government; the other a monarchy, but to which the hereditary principle communicates such an element of stability as to render possible the application of what is really the most popular and democratic political system to be found on this continent, which both combine, each in their respective spheres, to advance the happiness of mankind and to open up a new and fresher chapter of human history.

THE PORT OF TONGAS.

Tongas is an abandoned military post, and is the first port in Alaska met with after leaving British Columbia. It is situate on one of the coast islands near the Portland Canal, the boundary line. It is a place of no commercial importance. Since the military left and Mr. Millitech,

the deputy collector, was transferred to Wrangell, an English sul by the name of Snow has taken up his quarters there and establi a trading post for barter with the Indians at that point. The tri small, and the peltries they obtain few in number and inferior in v There can be no question but that Snow smuggles all his goods the Canadian side. He is, however, a man of limited capital, an loss to the revenue is small. He promised Deputy Collector Denn visit Wrangell in May last and make entry of all imported merchan I have not heard of his so doing. I wrote him from Tongas, advi him as to his future course. He has maintained a dignified silenc

I do not deem the presence of a customs officer here necessar account of the operations of this individual. We will some day po down upon him in a revenue cutter and sieze his stock in trade. B a British subject, I presume his person and liberty will be regard more inviolate than were he one of the cultus Americans who these isolated places for illicit deeds and trade.

When Snow went to Tongas he found there some 10 cords of w left there by Mr. Millitech, which he appropriated to his own use. refuses to pay for it, and I know of no law or power to compel him

SMUGGLING AND COMPENSATION TO INFORMERS.

The Indians carry on a large smuggling trade in blankets, liq etc., from the adjacent province of British Columbia. It is a known fact if you wish to procure at Wrangell a bottle of fine old 1 son Bay brandy there is no trouble in finding an Indian to produ provided you will pay the price demanded for it—usually about $4

Blankets are the Indian currency of the country. They are bro over in canoes to Wrangell, and successful landing and distributi made during the night. The only way to break it up is to enlis services of Indian informers; but here comes in the trouble—afte tragedy comes the farce. The repeal of the moiety act by Congre 1874 might well be classified as "An act to encourage smuggling prevent the collection of the revenue."

I found at Wrangell a very intelligent Indian, who detailed to m modus operandi of smuggling; and when I proposed to him to informer he very naïvely asked how much he would be paid. Wit going into details, which his uneducated mind could not comprehe endeavored to explain to him that would depend upon what the T (the Secretary of the Treasury) would allow him. The next que was, When he would be paid? This was a poser, but I endeavor impress upon him that pay some time or other was sure. The ex sion of countenance of this untutored savage was the greatest com tary upon Congressional legislation that could be conjectured or inve and I only regret I have not a photograph to illustrate the gr and comicality combined of the situation. He quietly informed n could make better terms with the smugglers, and I thought so As the law now stands, suppression of illicit traffic among the Ind is wholly inoperative.

COAST SURVEY CHARTS, AND LOSSES BY SHIPWRECKS, ACCIDENTS,

The want of reliable charts is the great drawback to Alaskan gation. From the boundary line north, Cape Fox, to the head of in navigation, including the coast to Bering Bay, the Russian and A can charts are entirely unreliable. The English have publishe charts north of 54° 40′.

The Coast Survey have published some harbor charts to the

The revenue steamers *Lincoln* and *Wayanda* never made a cruis Alaska without striking. The United States steamer *Saginaw* str several times while in Alaskan waters. The *Alert*, an English ma war, struck going into Sitka Harbor. Most of these vessels touche rocks that are not laid down on the charts. The schooner *Rosco* going to Klawack, struck an unknown ledge and came near being a t loss. The schooner *Northwestern* struck a rock in Clarence Str and was beached to save the lives of passengers and crew. The scho *Louisa Down*, in Lynn's Canal, likewise shared a similar fate. schooner *Langley* struck a reef in Chatham Straits and was a total Report says that in October, 1878, the British steamer *Otter* stru rock in Queen Charlotte Sound. The mail steamer *California*, w for years has made monthly trips to Wrangell, Sitka, Karta Bay, wack, etc., has frequently touched and been ashore. I was on b of her myself when she grounded on a rock coming out from Klaw

These are a few of the accidents I have been able to gather w have happened to vessels in the inland sea in southeastern Alask know nothing of the navigation to the westward, save that it is ex ingly hazardous and dangerous.

THE LIQUOR TRADE IN ALASKA.

This is an intricate and difficult question to discuss in all its pr bearings, and will cover a large field of investigation.

The law governing the introduction and sale of spirituous liqu as follows (section 1955, Revised Statutes):

The President shall have power to restrict and regulate or to prohibit the im tion and use of firearms, ammunition, and distilled spirits into and within the tory of Alaska. The exportation of the same from any other port or place United States, when destined to any port or place in that Territory, and all such ammunition, and distilled spirits exported or attempted to be exported from an or place in the United States and destined for such Territory, in violation of any lations that may be prescribed under this section, and all such arms, ammunitio distilled spirits landed or attempted to be landed or used at any port or place Territory, in violation of such regulations, shall be forfeited; and if the value same exceeds four hundred dollars the vessel upon which the same is found, o which they have been landed, together with her tackle, apparel, and furnitur cargo, shall be forfeited; and any person willfully violating such regulations s fined not more than five hundred dollars, or imprisoned not more than six m Bonds may be required for a faithful observance of such regulations from the or owners of any vessel departing from any port in the United States hav board firearms, ammunition, or distilled spirits, when such vessel is destined place in the Territory, or, if not so destined, when there is reasonable gro suspicion that such articles are intended to be landed therein in violation o and similar bonds may also be required on the landing of any such articles Territory from the person to whom the same may be consigned.

I had occasion, when in Oregon last year, to bring this qu directly to the attention of the Department, and reviewed the la orders upon the subject in a communication written at that ti made careful preparation of this individually, being familiar wi law and the facts. My associate, Mr. Evans, being with me a time, at his suggestion I made the report a joint one, and he also teered to sign it.

I reproduce it here, as it contains as good a résumé of the p condition of affairs as can be offered:

OFFICE OF SPECIAL AGENT OF THE TREASURY DEPARTMENT
Portland, Oreg., December 4,

SIR: The course to be pursued by collectors of customs in regard to the cl of vessels having on board spirituous or vinous liquors to be landed in th tory of Alaska, since the withdrawal of the troops, is one that requires im presentation to the Department.

Observation denotes that the total exclusion of alcoholic stimulants from A is not productive of those beneficial results which the object of the prohibitory lation was intended to effect. The natives manufacture by distillation from mo a vile, poisonous life and soul destroying decoction called "hoochenoo," saps the very essence of the human system, producing crime, disease, insanit death. When drunk and crazed from the deleterious effects of this accursed the natives, Aleuts, half-breed Russians, and mongrel population are in a con bordering upon frenzy, and at this time is to be dreaded the perpetration of ou and outbreak which will surely be the result if this infamous traffic is contin

The steamer which carries the United States mail from this port to Sitka and gell is the principal common carrier of most of the molasses which is converte rum. The custom-house records show that during the months of August, Septe October, November, and December of the present year there was exported i steamer from this place to Sitka 4,889 gallons of molasses, and to Wrangell f same period 1,635 gallons, nearly all of which it may safely be said has been factured into "hoochenoo," gallon for gallon.

If any inhibition can be made upon the exportation of this article of comme time should be lost in stopping its wholesale introduction into a region which, smouldering volcano, is likely at any time to break forth in eruption.

Stop this distillation of hoochenoo, and the fears of an Indian massacre w greatly lessened. It is the primeval cause of all the trouble and danger apprehended.

Wrangell Island, a port where a deputy collector is stationed, is the po embarkation of miners, traders, packers, etc., bound up the Stikine River f Cassiar and other valuable gold districts in British Columbia. Hundreds g come every year, and the number is constantly increasing. It is fast becom important station for the purchase of supplies, etc. When the miners retur the gold fields for the winter, many of them remain at Wrangell until spring. introduction of spirituous liquor is made absolutely prohibitory in Alaska, gling from British Columbia will be extensively resorted to in Indian canoe the "hoochenoo" will be resorted to.

It is therefore respectfully submitted that it is far better for the health, co sobriety, and good morals of these people that the trade in alcoholic stimula encouraged under suitable restrictions. Whoever is charged with this regu should put himself also in communication with the American consul at Vi Vancouver Island, who should be instructed not to affix to any shipment o ituous or vinous liquors his consular certificate without first having produced the permit for such exportation duly signed by the proper officer.

We are, respectfully, your obedient servants,

J. F. EVANS,
WM. GOUVERNEUR MORRIS,
Special Ag

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

The Department did not answer this communication, and the tion is still in as great doubt and uncertainty as ever.

Early in the present year I addressed the following letter Department:

OFFICE SPECIAL AGENT OF THE TREASURY
Port Townsend, Wash. Ter., February 1,

SIR: The collector of this port has been applied to for a clearance to Alaska tain merchandise, which is specifically described by the label of the bottle, reads as follows:

"New York
Calmuser,
Well known in Europe as the best and most stimulous
Root bitters.
No household should be without it.
Theo. Lux,
New York.
Established 1865."

Under my advice the collector refused the clearance, it being clear, upon e tion of the compound, it was intended not for medicinal purposes, but to s purpose of alcoholic stimulant.

The attention of the Department was called to a similar attempted shipm the district of the Willamette, by letter dated Portland, Oreg., December 4,

action than the ruling of the judge in the case of Major Cam
reported as follows:

OFFICE OF SPECIAL AGENT OF THE TREASURY DEPARTMENT,
Portland, Oreg., June 26,

SIR: I have the honor to call the attention of the Department to a case latel
in the circuit court of the United States for this circuit, in which one Hugh
is plaintiff, and Bvt. Maj. Joseph B. Campbell, captain, Fourth United State
lery, is defendant.

The question involved in this case is one of considerable magnitude. The
the cause occupied one week, during which time I was in constant attend
court watching every phase of the case.

In August, 1874, Major Campbell, who was then commanding the post at Sit
an officer to Wrangell with a file of soldiers, with instructions to arrest whom
might be found engaged in selling intoxicating liquors. In pursuance with th
Lieutenant Dyer, the officer charged with this duty, did arrest the plaintiff
confine him in the guardhouse at Fort Wrangell till the mail steamer touched
place en route to Sitka, when the prisoner was duly put on board of said s
delivered to Major Campbell at the latter post. He was not sent back on th
trip of the steamer which took him to Sitka, and ordered to be conveyed wit
jurisdiction of the proper court for trial, which would by law have cognizance
case, but was detained at Sitka a prisoner at the military guardhouse until
Campbell could report the arrest to the general commanding the departmen
quarters at Portland, and ask what disposition should be made of the prisoner.
to the inclemency of the elements and condition of the mail steamer, she
return to Sitka for more than two months, during which time Waters was
confinement. No other opportunity was afforded Major Campbell to send t
oner to Portland, no vessels of the United States having touched at that por
mean time.

This arrest was authorized by the provisions of section 2150 of the Revised S
giving the President the right to employ the military forces of the United
under such regulations as he may direct, in the apprehenshon of every pers
may be in the Indian country in violation of law.

In the year 1873 Congress by special enactment extended over the Terr
Alaska sections 20 and 21 of the act of June 30, 1834, entitled "An act to regula
and intercourse with Indian tribes, and to preserve peace on the frontiers."
20 of said act was extended as the act existed or read March 3, 1873. This
forbids the introduction into the Indian country of any spirituous or vinous
and provides the penalty for the violation thereof. Waters being detected vi
this act, and Alaska being "Indian country," was arrested.

The case at bar is an action for false imprisonment of the plaintiff by the
ant, and the damages are laid at $25,000.

The evidence disclosed that Major Campbell acted in pursuance with o
making the arrest, that no more force was used than necessary, and that the
received wholesome rations and medical treatment while in confinement; b
was some testimony going to show that Waters was compelled to perform
and servile labor. It was also shown he was a gambler by profession, and
ing intoxicating liquors and dealing faro at Wrangell.

Major Campbell was represented by Mr. Rufus Mallory, United States att
this district, and Judge W. W. Upton, special counsel employed by the Unite

I have deferred reporting this case in the expectation that the charge to
of Hon. Matthew P. Deady, United States district judge, would be publishe
could be transmitted for the information of the Department. Possibly it m
after be published by the military authorities, but I learn no copy will be
the press.

The charge was directly adverse to the defendant, and the jury were p
instructed to find for some sum in favor of the plaintiff. The court just
arrest, but held that the subsequent course of Major Campbell was not w
by law, relying in support of this doctrine upon section 2151, Revised Statut
provides that "no person apprehended by military force under the precedin
shall be detained longer than five days after arrest and before removal. A
and soldiers who may have any such person in custody shall treat him wit
humanity which the circumstances will permit."

The court held that Major Campbell, in detaining Waters over one stean
fact, keeping him in confinement more than five days, violated the statute,
clearly responsible in damages. The judge further instructed the jury that
ing Waters to work was unlawful; that the law only contemplates the re
liberty, and that citizen prisoners were not to be treated like those confine
tary offenses.

Some instructions were given upon the measure of damages, not necessar

which the Indians drink while warm. One gallon of the mixture make three-fourths of a gallon of hootzenoo, and the three-fourths gallon will craze the brains of ten Indians. This is about the r infernal decoction ever invented, producing intoxication, debauch insanity, and death. The smell is abominable and the taste atroc Previous to the arrival of the military its manufacture was unknow the Indians, but no sooner had the soldiers made their appearan Alaska than the detestable traffic commenced. And from the first geant of a company down to the drummer boy, it may be safely sa large number were either directly or indirectly interested in some destroying still.

When the Indians become crazed with this devilish drink, they all reason and become raving maniacs, carouse, indulge in the lascivious and disgusting immoralities, frequently ending in d murder and suicide.

One of the direct evil results of this detestable vice has been debauchery and degradation of the native women by a licentiou diery. Never particularly noted for an excess of virtue, they become victims to their appetite for strong drink and inordinate and they have fallen victims to the general contagion and ruin. aware this charge will provoke adverse criticism in certain qua and it is more particularly attributable to the years immediately ceeding the Russian purchase, with the advent of our troops, than later garrisoned. But successful contradiction is invited. The are too naked to bear the light of investigation.

Following in the steps of the troops come the miners, who see have emulated the sons of Mars in the prosecution, performance mad riot of the quintescence of vicious enjoyment. A whole r prostitutes have been created, and the morbus indecens of the L which the Roman doctors declined to treat, is found in full feathe luxurious blossom. To-day there is not a single surgeon or phy in southeastern Alaska, and when a victim becomes infected wi lues venerea, his fate can be predicted. Syphilitic diseases are the bane of the country. But few of the women who indulge in p cuous intercourse are free from the poisonous taint.

This is a sad and lamentable picture; but it is too true. It c wholly be eradicated, but it can be substantially checked, and t end are the efforts of the Christian missionaries now being devo

The other results following the introduction of hoochenoo will cussed in their appropriate place.

Deputy Collector Dennis, without any law, warrant, or authori done more than any single individual in Alaska to break up this Unaided by any authority he has made law unto himself, and more, has successfully enforced it, and whatever quiet and good exists in the settlement at Wrangell is due directly to his unsu individual efforts. He has arrested and fined Indians in the distilling, destroyed their stills, emptied the liquor on the groun has very largely contributed to the cessation of its manufacture immediate vicinity. It seems almost impossible to stop the m ture altogether; the natives having once conceived the t seems, like all drunkards, they will have the means of satisfyin appetite.

In February, 1875, Mr. H. Gaston, of Victoria, wrote to Col Powell, commissioner of Indian affairs for the Province of Brit umbia, a letter relating to the manufacture of liquor by Ind which he says: "The soldiers stationed in Sitka, being unable

cure liquor, commenced to make it for themselves, and taught the secret to the natives." Colonel Powell, in his report to the honorable minister of the interior at Ottawa, makes the following suggestion:

No doubt, however, exists, should the anticipations of Mr. Gaston prove correct as to the general and indiscriminate manufacture of spirits by Indians themselves, that it will revive the important question, which has been heretofore debated with much force and argument in political circles, as to whether it might not be prudent to legalize the traffic under certain restrictions, since its suppression would seem to be so difficult, if not impossible.

I think the views of Colonel Powell are well worthy of consideration. Mr. Alexander Caulfield Anderson, author of the Government prize essay on British Columbia, 1872, holds the same views, saying:

A second fertile cause has been doubtless the supply of intoxicating liquors—deleterious if not positively poisonous compounds—by unscrupulous men of the lowest and the laziest class. The laws established for the prevention of this offense, both within the Province and in the adjacent territory of the United States, are stringent, and every effort is made to enforce them; nevertheless constant evasions occur, and it has been seriously mooted whether, if it be found impracticable to suppress the nefarious traffic entirely, it might not be prudent to legalize it under due restrictions. A third and last cause may be only passingly adverted to—the physical contamination which a degraded and licentious intercourse carries with it, against which no laws can provide.

The above remarks were drawn forth while discussing the diminution of the Indian tribes since their contact with Europeans.

THE IMPORTATION OF FIREARMS AND AMMUNITION.

I find some doubt exists in the minds of collectors as to whether should only be excluded from importation into Alaska breech-loading firearms and fixed ammunition. When at Portland this matter was brought to my notice, and I wrote the deputy collector at Wrangell, who replied as follows:

CUSTOM-HOUSE, WRANGELL, ALASKA,
Collector's Office, August 12, 1878.

SIR: Your communication of July 29 in reference to the shipping of powder and percussion caps is at hand. I know of no instructions from the Department since the withdrawal of the military. The practice has been to exclude fixed ammunition only.

I am, sir, respectfully, your obedient servant,

R. D. CRITTENDEN,
Deputy Collector.

WM. GOUVERNEUR MORRIS,
Special Agent of the Treasury, Portland, Oreg.

I inclosed this with the following letter to Maj. A. H. Nickerson, U. S. A., assistant adjutant-general of the Department of the Columbia, who returned it with an indorsement and certain papers, as follows:

OFFICE SPECIAL AGENT OF THE TREASURY,
Portland, Oreg., August 22, 1878.

SIR: I have the honor to inclose copy of a letter recently received from the deputy collector at Wrangell, Alaska, upon the subject of the shipment of ammunition to that Territory.

When the *California* was sought to be cleared for Alaska, on the 31st of last month, the collector called my attention to a shipment of percussion caps and certain kegs of rifle powder destined for Wrangell. This was permitted to go forward, and the deputy at Wrangell written to, asking what had been the practice at that port since the withdrawal of the military.

I am desirous of knowing what construction was placed upon the law respecting the importation into Alaska of ammunition by the military authorities.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

Maj. A. H. NICKERSON, U. S. A.,
Assistant Adjutant-General
Headquarters Department of the Columbia, Fort Vancouver.

[First indorsement.]

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
Fort Vancouver, Wash. Ter., August 30, 18

Respectfully returned to the Hon. Wm. Gouverneur Morris, special agent o Treasury, Portland, Oreg., inviting attention to inclosed circular of Novemb 1872, and copies of letters.

By command of Brigadier-General Howard:

A. H. NICKERSON,
Major and Assistant Adjutant-Gener

HEADQUARTERS, DEPARTMENT OF THE COLUMBIA,
Portland, Oreg., October 21, 18

SIRS: On July 3 last, in accordance with the provisions of section 2132, a cir approved by the President of the United States was addressed by the Treasury De ment to collectors of customs, forbidding "the importation of breech-loading and fixed ammunition suitable therefor into the Territory of Alaska, and the ment of such rifles or ammunition to any port or place in the Territory of Al and collectors of customs are instructed to refuse clearance of any vessel havi board any such arms or ammunition destined for any port or place in said Territ

The department commander, therefore, you will perceive, has no authority o cretion in the premises, nor does he desire any.

I am, sir, very respectfully, your obedient servant,

H. CLAY WOOD,
Assistant Adjutant-Gene

J. C. MERRILL & CO.,
204 and 206 California street, Post-Office Lock Box 2240, San Francisco.

Official:
A. H. NICKERSON,
Major and Assistant Adjutant-General.

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
Portland, Oreg., September 6, 1

SIR: Your communication of July 2 last, addressed to the assistant adjutant-g at division headquarters, San Francisco, stating that "the two companies doin ness in this district annually receive, from San Francisco, rifles, caps, powder, b and lead, and by bonds filed with collector at San Francisco the shipments are ered to me. I find that when this place was occupied as a military station, p were given by the then commanding officer to said companies for small shi of arms and ammunition to their different stations, and as I have no instruct the matter, have pursued a similar course," has been referred to these headq approving the views "in respect to the shipment of arms and ammunition to stations in Alaska" of the department commander, and requesting him to such instructions in respect thereto as you (he) may consider proper."

Accordingly the department commander has instructed me to inform you th are no existing permits or authority from these headquarters or superior authority for the importation into Alaska of rifles, powder, bullets, and lead, manufacture or description whatever, or for their shipment to the different of the companies referred to.

Very respectfully, your obedient servant,

H. CLAY WOO
Assistant Adjutant-G

JOHN N. KING, Esq.,
Deputy Collector of Customs, Kodiak, Alaska Territory (via San Francisco,

Official:
A. H. NICKERSON,
Major and Assistant Adjutant-General

[Circular.]

HEADQUARTERS DEPARTMENT OF THE COLUMBI
Portland, Oreg., November 7,

The following executive proclamation and the Treasury regulations the relating to the collection district of Alaska, are republished for the inform all concerned:

"TREASURY DEPARTMENT, *February 5*

"The attention of collectors and other officers of the customs is directe following executive order:

"'EXECUTIVE MANSIO
"'*Washington, D. C., February 4*

"'Under and in pursuance of the authority vested in me by the provisio second section of the act of Congress, approved on the 27th day of July, 1

I have no knowledge of there having been any exportation of breech-loading arms to Alaska since the withdrawal of the military, save an occasional rifle in the hands of miners, and I can not see how this can well be prevented. It would be well for some modified regulation to be issued upon the subject, but I do not wish to be understood as favoring a change of policy. The views of Major-General Schofield are, I think, eminently correct and should be carried out.

I think it was the intention of the Department only to exclude shipments of fixed ammunition, but our collectors do not so understand it, for Colonel Wood, in his letter to the deputy collector at Kodiak, says: "There are no existing permits or authority from these headquarters, or superior military authority, for the importation into Alaska of rifles, powder, bullets, and lead, of any manufacture or description whatever."

The Indians must have powder, lead, and shot to use in their smooth-bore guns and Hudson Bay muskets; so must the whites for hunting; and if they can't import it from the United States they can readily smuggle all they want from British Columbia.

Does the Department mean to absolutely prohibit an individual emigrating to Alaska from taking with him for his own personal safety and convenience a breech-loading rifle, and the necessary ammunition for his own personal use?

Again, if a man is found upon an American steamship with such a weapon in his possession, what course are the customs authorities to adopt?

I ask these questions because such a state of facts is constantly arising, and the customs officers are in doubt what course to pursue. As said before, the whole subject needs revision, and the sooner it is done the better.

I have no accurate means of ascertaining the approximate number of breech-loading arms in possession of the Indians in Alaska. They have a few Henry rifles, mostly of the old pattern.

Shasta Hauck, chief of the Stikines, has mounted at his place two 4-pound boat swivel guns of no value, supposed to have been purchased from the Russians or Hudson Bay Company.

Occasionally an Indian will purchase from a miner in British Columbia a repeating rifle, but instances are not of an alarming character, as far as I know.

THE INDIAN TRIBES OF ALASKA—MISSIONARIES AND INDIAN SCHOOLS—PRESENT CONDITION AND FUTURE GOVERNMENT.

These subjects embrace a wide discussion, and I have thought best to limit them to one comprehensive title.

It is exceedingly difficult to approximate with any great degree of accuracy the number of natives in Alaska. The divergence of opinion is great. I will proceed to enumerate a few of the estimates by quoting, first:

[From Major-General Halleck's report to the Secretary of War, 1869.]

NAMES OF TRIBES AND THEIR NUMBERS.

Indian population.—Most writers make four general divisions of the natives of Alaska: First, the Koloshians; second, the Kenaians; third, the Aleuts; fourth, the Esquimaux. These are again subdivided into numerous tribes and families, which have been named, sometimes from their places of residence or resort, and sometimes from other circumstances or incidents.

1. *The Koloshians.*—This name is given by the Russians to all the natives who inhabit the islands and coast from the latitude 54° 40′ to the mouth of the Atna or Copper River. The Indians of the northern islands and northern coast of British Columbia belong to the same stock, and their entire population was estimated by the

early explorers at 25,000. The Koloshians in Alaska at the present time have been subdivided and classed as follows:

The Hydas, who inhabit the southern part of Alexandria or Prince of Wales Archipelago. They have usually been hostile to the whites, and a few years ago captured a trading vessel and murdered the crew. They number about 600. These Indians are also called Kaiaganies and Kliarakans; the former being near Kaigan Harbor, and the latter near the Gulf of Kliarakan. In the same archipelago are the Hennegas, who live near Cape Pole, and the Chatsinas, who occupy the northern portion of the principal island. They are said to be peaceful, and to number about 500 each; in all about 1,000.

The Tongas, who live on Tongas Island and on the north side of Portland Channel. A branch of this tribe called the Foxes, now under a separate chief, live near Cape Fox. The two branches together number about 500.

The Stikeens, who live on the Stackine River and the island near its mouth; although represented as at the present time peaceable, a few years ago they captured a trading vessel and murdered the crew. They number about 1,000.

The Kakus, or Kakes, who live on Kuprinoff Island, having their principal settlement near the northwestern side. These Indians have long been hostile to the whites, making distant warlike incursions in their canoes. They have several times visited Puget Sound, and in 1857 murdered the collector of customs at Port Townsend. They number altogether about 1,200.

The Kous, who have several villages on the bays and inlets of Kou Island, between Cape Division and Prince Fredericks Sound. They are represented as generally unfriendly to our people. They are dangerous only to small unarmed traders. They number in all about 800.

The Koutznous, or Koushnous, who live near Kootznere Head, at the mouth of Hoods Bay, Admiralty Island. They number about 800.

The Awks, who live along Douglas Channel and near the mouth of Tako River. They have a bad reputation and number about 800.

The Sundowns and Takos, who live on the mainland from Port Houghton to the Tako River. They number about 500.

The Chilcates or Chilkahts, living on Lynn Channel and the Chilkaht River. They are warlike and have heretofore been hostile to all whites, but at present manifest a disposition to be friendly. They muster about 2,000.

The Hoodsua-hoos, who live near the head of Chatham Straits. There are also small settlements of them near Port Frederick and at some other points. They number about 1,000.

The Hunnas or Hooneaks, who are scattered along the mainland from Lynn Canal to Cape Spencer. Their number is about 1,000.

The Sitkas or Indians on Baranoff Island, who were at first opposed to the change of flags, but have since become friendly. These are estimated by General Davis at about 1,200.

If we add to these the scattering families and tribes on the islands not above enumerated and the Hyacks, who live south of Copper River, we shall have from 12,000 to 15,000 as the whole number of Koloshians in the Territory.

2. *The Kenaians.*—This name, derived from the peninsula of Kenai, which lies between Cooks Inlet and Prince William Sound, has been applied to all the Indians who occupy the country north of Copper River and west of the Rocky Mountains, except the Aleuts and Esquimaux. The employees of the telegraph company represent them as peaceful and well disposed. They, however, are ready to avenge any affront or wrong. I have not sufficient data to give the names, locations, or numbers of the several tribes of these people. Their whole number is usually estimated at 25,000.

3. *The Aleuts.*—This term more properly belongs to the natives of the Aleutian Islands, but it has been applied also to those of the Schoumagin and Kadiak groups, and to the Southern Esquimaux, whom they greatly resemble. They are generally kind and well disposed, and not entirely wanting in industry. By the introduction of schools and churches among these people, the Russians have done much toward reducing them to a state of civilization. As might be expected from the indefinite character of the lines separating them from the Esquimaux, the estimates of their numbers are conflicting, varying from 4,000 to 10,000. Probably the lowest number would comprise all the inhabitants of the Aleutian Islands proper, while if we include the other groups and the peninsula of Alaska, and the country bordering on Bristol Bay, the whole number may reach as high as 10,000.

4. *The Esquimaux.*—These people, who constitute the remainder of the population of Alaska, inhabit the coasts of Bering Sea and of the Arctic Ocean and the interior country north, and including the northern branches of the Yukon River. The Kenaians are said to hold the country along the more southerly branches of that river. The character of the Alaskan Esquimaux does not essentially differ from that of the same race in other parts of the world. They are low in the scale of humanity, and number about 20,000. These estimates make the entire Indian population of Alaska about 60,000.

[Report of Bvt. Lieut. Col. Robert N. Scott, U. S. A.]

INDIANS LIVING ON AND NEAR THE BOUNDARY BETWEEN BRITISH COLUMBIA THE RUSSIAN-AMERICAN TERRITORY RECENTLY CEDED TO THE UNITED STAT

Chimpsains.—Living on Chimpsain Peninsula. Their principal village is at Simpson, where a Hudson Bay post (the largest on the coast) has been locat some thirty years. There are about 900 Indians at the point, living in large, str built lodges. About 600 of this tribe are at Metlakahtla, a missionary and tr village about 15 miles to the southward of Fort Simpson, on Chatham Sound. Simpson is a large stockade fort, armed with eight 4-pounder iron guns, but are now but three or four whites at that station.

Naas River Indians.—Naas River empties into Portland Channel at about 55° latitude and about 30 miles to the northward and eastward of Fort Simpson. Cunningham (the Naas River trader for Hudson Bay Company) was at Fort son while I was there, and kindly furnished such information as I possess in ence to tribes on that and Skeena River. He estimates the total number of Indians at 2,000.

The Kakes, Foxes, Hydahs, Tongas, and Stikeens trade on the Naas for ou oil and other articles. The Naas Indians go into Portland Channel, near its to catch salmon, which are said to be very abundant. There is a tribe of abo souls now living on a westerly branch of the Naas near Stikeen River. Th called "Lackweips," and formerly lived on Portland Channel. They moved in consequence of an unsuccessful war with the Naas, and now trade exclu with the Stikeens. The Hudson Bay Company is making strong efforts to cile this feud, in order to recover their trade. (I embrace under this headi Indians who are within easy access to Portland Channel, coming there to trad or within an area of 60 miles north and south of that inlet.)

Skeena River Indians.—Skeena River empties into Port Essington about 35 below Portland Channel. Its source is not far from the head waters of the The total number of Indians on the river and its tributaries is reliably estim 2,400, namely:

Kitsalas .....
Kitswingahs .....
Kitspayuchs .....
Kitsagas .....
Kitsiguchs .....
Hagulgets .....
Kitswinscolds .....

The last-named tribe live between the Naas and the Skeena. They are repr as a very superior race, industrious, sober, cleanly, and peaceable.

Kitatels.—Living on the islands in Ogden's Channel, about 60 miles belo Simpson. They number about 300 persons, and are not considered very trust These people trade at Metlakahtla.

Hydahs.—This name is given to the Indians on the northern shores of Quee lotte Island and to all of our Indians on Prince of Wales Islands, except the gas and Chatsinahs. The British Indians living along the shore from Virago to North Point and Cape Knox number 300. Those at Masset Harbor are al mated at 300. The American Hydahs are called Ky-gaunies or Kliavakans. number about 600 souls, and are scattered along the shore from Cordova to Bay. Quite a number of the men from these tribes are employed about Victo in the sawmills on Puget Sound. A few years ago some British Hydahs capt schooner *Blue Wing*, off Seattle, Wash., and murdered all the crew and pa some five or six persons.

Tongas.—Not many years ago this was a warlike and numerous tribe, and no ber not more than 200 souls. They hunt, fish, and trade among the islands the northern shores of Portland Channel. Their principal village is on Tonga to which reference is made elsewhere.

There is no Indian bureau with attendant complications. There is no pr recognition of the Indian's "title" in fee simple to the lands over which he r fish or game. Intoxicating liquors were not introduced among these people as the Hudson Bay Company possessed the monopoly of trade. Prompt pun follows the perpetration of crime, and from time to time the presence of a serves to remind the savages along the coast of the power of their maste more than two years ago the Fort Rupert Indians were severely punished f ing to deliver certain criminals demanded by the civil magistrate. Thei was bombarded and completely destroyed by Her Britannic Majesty's gunb As the result of such a policy we find trading posts well stocked with ev tempting to savage cupidity safely conducted by one or two whites amon and powerful tribes. There is not a regular soldier in all British Columbia

ing marines on shipboard and at equipment), and yet white men travel through the length and breadth of the province in almost absolute security. Yet the total number of Indians in the colony is estimated at 40,000, and there are not more than 8,000 whites. Dr. Tolmie informed me that Captain Howard, of our revenue service, had stated in Victoria that no one would be allowed to sell arms or ammunition to the Indians in our Territory. This policy, provided it could be carried out, would simply deprive these people of the means of gaining a livelihood. They must have guns, not only to get food, but to secure the furs, skins, etc., of the northwest trade. But these Indians will get arms and ammunition. If our own traders are prohibited from furnishing them, they can and will get them from British Columbia, and in this event they would naturally look upon the British as their best friends. The consequence of such a state of feeling, as affecting our trade and intercourse with them, may readily be imagined, inasmuch as most of our trading intercourse with Alaska will be by small vessels, running through what is called the inside passage along the coast of British Columbia. I deemed it advisable to collect such information as could be obtained in reference to Indians living on and near that route for convenient reference.

I submit herewith a copy of the letter of instructions received from Major-General Halleck (inclosure A).

Very respectfully, your obedient servant,

ROBERT N. SCOTT,
Brevet Lieutenant-Colonel and A. D. C.

Brevet Maj. Gen. JAMES B. FRY,
Adjutant-General Military District of the Pacific.

Vincent Collyer says:

Major-General Halleck's nomenclature I have already given. His estimate I believe to be nearest correct of any. In all cases where I counted them the number exceeded the published estimates.

Col. H. Clay Wood, U. S. A., assistant adjutant-general of the Department of the Columbia, in a report made to General Howard on the liquor traffic, remarks:

There are upward of 60,000 Indians in Alaska Territory, dispersed in numerous tribes and bands.

Special Agent Elliott estimates as follows:

The number of Indians now living in the Territory is, according to best authority and my judgment, between 18,000 and 20,000. Of this number, between 10,000 and 12,000 belong to that district bounded on the north by Cooks Inlet and south by Fort Simpson; the remainder inhabit that stretch of country reaching from Bristol Bay to Kotzebue Sound, and back into the far interior, where there are several tribes, supposed to be quite numerous, about which very little is known, even by the traders.

The present Commissioner of Indian Affairs reports, under the following date:

WASHINGTON, D. C., *November 1, 1877.*

The Indians of Alaska, numbering over 20,000, being within the jurisdiction of the United States, have at least a moral claim upon the Government for assistance in the way of civilization. Under the policy of letting these tribes alone, Indians who are as yet without the influence of either the virtues or vices of civilization will gradually become victims to the practice of whisky drinking and other deteriorating influences; those whose contact with whites has already resulted in demoralization will become still more degraded; and those who, under Russian rule and influence, became partially civilized, will, by the withdrawal of the restraints and protection of Russian law and the failure to substitute the authority of the United States Government, relapse into barbarism.

The fact that these tribes are not dependent on the Government for subsistence and are not occupying lands which United States citizens covet, should not serve as an argument for leaving them without law, order, or civilizing influences. Unless it is the intention of the Government to abandon Alaska altogether, some plan for bringing these Indians under civilizing control of the Government should be adopted at an early day, especially for furnishing them educational facilities. I would recommend the appointment of a special agent, whose duty it shall be to ascertain their condition and wants and make report thereon, to be the basis of future action.

I have the honor to be, sir, very respectfully, your obedient servant,

E. A. HAYT, *Commissioner.*

Hon. SECRETARY OF THE INTERIOR.

Desiring to have the views of the Hon. James G. Swan upon number of Indians in Alaska and how they should be manage addressed him a communication requesting he would at length pre a statement for me. This he has done in a very able and interes manner, and it is now presented. Judge Swan has had much ex ence with the Indians on this coast. I have great respect for the v he advances, and rely very much upon his judgment.

NEEAH BAY, WASHINGTON TER., *October 19, 18*

MY DEAR MAJOR: I will now endeavor to reply to your letter of the 12th, in w you request me to give you "the estimate of the number of Indians in Alaska where located," and also "to offer any suggestions or remarks I may desire to concerning those Indians and their future management." I therefore respect submit the following:

First, as to their number. The only information I have which may be consid as reliable, because it is official, is contained in Dall's Report on the Tribes o Extreme Northwest, which is published in vol. 1 of Contributions to North Ame Ethnology, by Maj. J. W. Powell, by instructions of the Department of the Int 1877. In this interesting and valuable report you will find all the information has been published to the present time respecting the Alaska Indians, whi classes as "Orarians," or tribes living on the seacoast (although he does not gi reason for using the term "Orarians," a word I do not know the meaning or a cation of), and Indians, and gives the whole number as—

Total Alaska Indians..... 1
Total Alaska Orarians..... 1

Total native population..... 2

The Orarians are, first, the Innuit; second, the Aleuts.

The Innuit are the most western tribes, and are classed by Dall with the tri the adjacent coast of Asia. The whole number of the Innuits he places at 1 The Aleuts are the eastern, or Unalaskans, and the western, or Atkans. Of there are 2,454, making a total of Orarians, 14,054.

The Indian tribes of Alaska are divided by Dall into two groups, the Tinne T'linkets. The former are the more northerly tribes, from Cooks Inlet and C River north, and the latter are the tribes from Cooks Inlet to the southern bord Alaska, and are the tribes more particularly met with by travelers to Sitka, Wra and the Prince of Wales Archipelago.

The Tinnet number.....
The T'linkets.....

Making a total of Alaskan Indians.....

But, in speaking of the native population of Alaska, it is proper to call th "Indians" to prevent confusion. Dall adds to this whole number of natives, as before stated, is 25,704, as follows: e. g., Russians, 50; half-breeds or c 1,500; citizens, including military, 250—1,800; making the total population Territory, 27,504.

The military have been removed since Dall's estimate was made, but the ad to the population since the canneries at Sitka and Klawack have been estab and the influx occasioned by the mineral discoveries, will make the total whole population at the present time not far from the amount estimated by D

The second question, "As to the best method of managing the Indians of Al is one of deep interest; one which requires much study and careful consider and no conclusions should be hastily made. In accepting your kind invita express myself on this momentous question, I shall have to ask your perm to allow me to state how I have acquired the information requisite to enable advance an opinion upon so grave a subject as the management of Indians.

Since 1852, at which time I first came to this Territory (then a part of Ore have devoted a considerable portion of my time to the study of Indian hab customs, to ethnology, archæology, and all matters pertaining to the history people, especially the natives of the Northwest Coast. In 1855 I was with t Gen. Isaac I. Stevens, when, as governor of Washington Territory and super ent of Indian affairs, he made treaties with the several tribes west of the C Range, and subsequently was with him in Washington as his private secre the time he, as Delegate in Congress from this Territory, aided in havin treaties confirmed by the Senate. The subject of those treaties was the our frequent conversation, and no man knows better than myself what Ge

Stevens's true intention was concerning them; and I can safely and truly state, that had the treaties he made been carried out in the spirit and intent with which he made them, much good would have been effected with the Indians, and it is the non-fulfillment of those treaties which has been the prime cause of all the trouble we have had with the Indians in this Territory. I was then, and am now, opposed to any or all treaty-making with the natives, and I published my views in a work entitled The Northwest Coast, which was issued by Harpers in 1857. On pages 349 and 350, and from the last paragraph on page 367, my views are freely expressed. (If you have not a copy of the book, you can obtain one either at Mr. Webster's or Dr. Minor's.)

My observation and experience since then have proved to me that my views as there expressed are correct; that it is folly to think of making any more treaties with Indians, and, so far as Alaska is considered, I see no object to be attained by repeating a worn-out farce of treating with a people who are living in a Territory which we have acquired the fee simple of by the purchase the United States made of Russia, in which purchase no mention is made of any reserved rights of Indians or any other people. The land belongs to the United States, and no treaties are necessary to extinguish Indian titles.

We must therefore meet this Alaskan question other than by the time-honored custom of making a solemn treaty with a horde of breechless savages in the same formal manner and with more imposing ceremony than we are wont to do with such great nations as Great Britain, France, Germany, and Russia. What, then, shall be that method and how can it be carried into effect is the subject which your letter invites me to discuss.

I think that the Indians themselves can give us some useful hints regarding the manner of treatment which would not only be acceptable to them, but would, in my judgment, lead to the happiest results.

In 1875 I had the honor of being appointed as a special commissioner of the United States for procuring articles of Indian manufacture for the National Museum, to be exhibited at the Centennial Exposition in Philadelphia, and proceeded, in the United States revenue steamer *Wolcott*, to Alaska, in a cruise during the months of June and July of that year.

During that cruise we stopped at many of the villages of various tribes, and whenever we had any conversation with the Indians it was the universally expressed wish that the Government would send them teachers and missionaries, as the English had sent to the Indians of British Columbia, and they particularly referred to the missions at Fort Simpson, and at Metlakatla, British Columbia, the former under the charge of Rev. Mr. Crosby, of the Wesleyan Methodist Society of Ontario, Canada, and the latter under charge of Rev. Mr. Duncan, of the Episcopal Missionary Society of London, England.

Fort Simpson, being one of the principal trading posts of the Hudson Bay Company and situated but a few miles from the southern boundary of Alaska, is the place where a great many of the Alaskan tribes resort to sell their furs, and have there seen for themselves the superior condition of the Tsimsean Indians, both at Fort Simpson and Metlakatla, and it was undoubtedly a jealous spirit, induced by the unfavorable comparison of their own uncivilized state, in contrast with the great improvement of the Tsimseans, which caused them to be so unanimous in their applications to us for Government aid in sending teachers to them.

In a report made by me to the Commissioner of Indian Affairs on my return, which was also published in the Port Townsend Argus, September 3, 1877, I dwelt at length on this subject, and strongly recommended that our Government adopt toward the Alaska Indians a similar policy to that so successfully enforced in British Columbia, at the two missions of Metlakatla and Fort Simpson, a short account of which will serve to explain the method which I would suggest our Government adopt in its future management of the Alaskan tribes.

In October, 1857, Mr. William Duncan, a missionary, schoolmaster, and catechist, and graduate at Highbury Episcopal Training College of the Church Missionary Society of London, was selected to fill the post of teacher and missionary at Fort Simpson, and, with no other aid than the stipend paid him by the society and occasional donations from charitable persons in England and in Victoria, he has succeeded in making the Indians under his charge a self-sustaining people, and their settlement is a model which many of our pioneer communities might emulate with profit.

In May, 1860, Mr. Duncan, finding the locality of the post at Fort Simpson unsuited to his purpose, removed to his present place at Metlakatla, some 20 miles south, where he established a town. Here, acting in turns as minister, schoolmaster, physician, builder, arbitrator, magistrate, trader, and teacher of various mechanic arts, he has labored so successfully that they now own a schooner trading regularly to Victoria, they have a joint stock trading house, a market house, a soap manufactory, blacksmith shop, sawmill, an octagon-shaped schoolhouse which cost nearly

$4,000, a building 90 feet by 30, used as a court-house, for public meetings, an accommodate strangers, a mission house 64 feet by 32, containing seven apartm on the ground floor, a spacious dormitory above, and outbuildings. Also a ch a woolen factory, where they weave blankets and common flannel on a mac supplied them by the proprietors of the Mission Mills at San Francisco, a rope twine factory, a tannery, a boot and shoe factory, and a variety of other u things impossible for me here to particularize.

The British Government recognizes Mr. Duncan's great work, and directs all it cials in the navy and army who may be on the coast of British Columbia to re him such aid as he may need. But there his connection with his Government He has done this work with the voluntary aid and contributions of the Indians is by their help rendered independent of any outside support to carry on the mi work. There are no paid officials, no annuities, no treaties, and no thieving I agents, but the whole is managed just as any community of white people manage town affairs.

After Mr. Duncan left Fort Simpson he was succeeded by Rev. Mr. Crosby, o Wesleyan Mission. What I have written of Mr. Duncan can be said of Mr. Cr Both these gentlemen are doing a great and marked good in their respective mis and the only way in which the Dominion Government of Canada takes care of is through its efficient Indian commissioner, Dr. John W. Powell, of Victoria annually visits those missions and all the coast tribes in the Dominion steam *James Douglas*, and who is ready at all times to cooperate with Messrs. Dunca Crosby in enforcing the laws of the Dominion relative to Indian affairs.

The coast tribes of British Columbia are quite as savage as those of Alaska. all have trade and intercourse with each other, and their manners and custo identical, and, as the Alaskan Indians are desirous of having schools and te as the British Columbia Indians have, it seems to me to point out the true m by which our Government can manage those natives.

I am averse to all treaties and reservations, with their expensive machin agents and employees paid by the Government, and of paying annuities to I to encourage them in idleness. That policy has been the ruling one since th of George Washington. We all have seen the great error and the little good policy, but have been unable to avert or amend it; but Alaska is an exception Indian population. Separated from the States and Territories by British Col her Indian tribes have no affinity with or knowledge of the working of our system, and they present a fresh field of operation.

I respectfully suggest that the British Columbia plan, which has proved so em successful, be adopted. I would recommend that the various religious denomin send out missionaries, so that every tribe may be supplied. In order to do commission should be sent to Alaska to ascertain just where and how many o missions should be established, and then each missionary society be invited t and send men fitted for the work, who would go in the same spirit and with t capacity, executive, ministerial, and financial, that Messrs. Duncan and Crosb and the whole to be under charge of one general superintendent, who, like Dr. should visit every mission once or twice each year and report to the Govern Washington. Such missions should be aided by the Government to enable t start in a proper manner, but there would be no necessity for any great ap tion, for, as at Metlakatla and Fort Simpson, the missions should be self-supp

From my own knowledge and experience and long observation, I feel just asserting that the Alaskan Indians are now just in that state in which they receive teachers most cordially, and would do as much as the Tsimseans have the missions at Fort Simpson and Metlakatla. This plan is no theory of min it a new thing. It is a plan which has been in successful operation in British bia for many years, and is one peculiarly adapted to the Indians of Alaska; on many of them have seen in successful operation, and one which they heartily and wish introduced among them. On the score of economy, it is eminently to any system we now have regarding Indian management, and, as regards be the Indians in every respect, we have only to refer to the missions I allude proof of its excellence. But above all things, this system is to be recomme its freedom from change.

The question is often asked, and never with more pertinence than at the pres when the subject of turning over the Indian Bureau to the War Department leading topic in the next Congress, "What good has been done to the Indian peace policy, and why do we not see better results?" The answer is appare most casual observer: It is the constant change of agents and the constant policy of every new incumbent in the office of Indian Commissioner. What more than anything is permanence of plan; and to accomplish this, a polic be adopted of having good men like those I have named remain in positio good behavior, or so long as they are accomplishing good and beneficial This can not be done under our present system, where every Indian agent f

his appointment is only for four years and a change of Administration is sure to turn him out of office. It is this change, more than anything else, which has induced so many men of weak moral stamina to pay more attention to enriching themselves, rather than to do their duty and carry out treaty stipulations. This change has more to do with our Indian troubles than most people are aware of. The Indian mind is not given to change, least of all sudden changes of policy. He may change his habitation and roam about, but his mind is stoical and fixed; and it is only by a long series of years and the most careful and discreet exercise of judgment by those placed over him that he can be induced to give up the wild legends and traditions of his forefathers and to adopt the manners and customs of civilized life.

The records of the Indian Bureau are full of accounts of frequent changes of agents and changes in administrative capacity. The Indian is told at the time of making a treaty what the Government will do for him, and he places faith in the promise; but when such promises, solemnly made by a great nation, are so frequently and ruthlessly broken, he loses all faith, and considers the Great Father in Washington as a myth, whose name is synonymous with that of the "Shitan" of the Turk.

I am now writing at the Makah Indian Agency, instituted by the treaty of Neah Bay. This agency was inaugurated under Agent Henry A. Webster, whose wise policy was being understood and accepted by these Indians, who were being gradually drawn from their savage ways and induced to look upon civilization in a more favorable light. The improvements he caused to be made, in erecting good and substantial buildings, in fencing and clearing land, in making good roads, in raising great crops of potatoes, which were all distributed among the Indians, and in causing whole villages to assume an appearance of neatness, in his encouragement of their industries, and in the education of their children, was not lost upon the Indian mind; but he was relieved from the position, and since then four other agents have been in charge, each of whom had different views, and to-day I see the very improvements which I assisted to make while Mr. Webster was agent have been allowed to become dilapidated, and show evidence of utter shiftlessness and neglect. Buildings out of repair, roads impassable, fences covered with moss and rotting down, and not one acre of land cleared in addition to what we cleared during Mr. Webster's agency. The Indians see this, and daily I hear the remark that Mr. Webster was the best agent they ever had, and they ask to have the old policy restored. I can see and understand if Mr. Webster's plan had been continued to the present time the great amount of good which would have resulted. But, instead, I find these Indians, with but few exceptions, and those principally of the school children, the same breechless savages they were when I first came here as an employee in 1862, an appearance which so disgusted Colonel Watkins, the Indian inspector, who was here a year ago, that he pronounced them the dirtiest set of savages he had ever seen on the whole continent.

Now, this state of things has been simply the result of a continued change of agents. I do not make these remarks to reflect upon their present agent, who has been in charge only a few months, with but small means to work with, whose plans and views seem to be similar to those of Mr. Webster, but simply as an illustration of the remark I have made, of the bad effects on Indians of repeated changes.

The policy I suggest will find but little favor in the eyes of those persons who are deep in the hidden mysteries of Indian rings, as there will be no great amount to be distributed among Indians by underpaid agents and no prospective profits to loom up in the distant horizon of fraudulent contractors by this policy; but if you, as the agent of the Government, could visit Metlakatla and Fort Simpson and see the working of this mission system and visit the various Alaskan tribes as I did, I am confident you would pronounce my statement correct.

I would not presume to offer any views about the detail or the working of this plan. That is a matter for the investigation of commissions, who, by conferring with Indian Commissioner Powell, in Victoria, and going personally to Metlakatla and Fort Simpson and to the various Alaskan tribes as far as Sitka, could be better able to suggest what, in their opinion, would be the best course to pursue. A commission could easily and economically be sent to Alaska from Port Townsend, who could visit every place I have named and be able to report before the adjournment of the present Congress. I can only say that the winter is the best time for such visits to be made, as the Indians would all be at home in their winter quarters, and if I can aid in any way or assist in developing this plan, even though it should not be ultimately adopted by Congress, I shall feel that I have been engaged in a good work for the red men of Alaska.

I am aware that these views of mine will be met with the statement that the religious denominations have already, under the peace policy, furnished Indian agents, and that in very many instances their selections have proved failures. But simply being a professor of religion or a minister of the gospel does not prevent those who have an inborn cussedness from using their religion as a cloak under which they have carried out their thieving propensities. But in this place there is nothing to excite

the cupidity of theological mawworms or Aminadab Sleeks. They are the very last people who would seek for an opportunity to do true missionary work, as is done in British Columbia; and when we reflect that there are no soldiers or Indian agents or Indian treaties in all that country like we have in the United States, that they have no Indian wars as we have, and that Commissioner Powell, by the aid afforded him of the use of the naval vessels at Esquimault, has been able to suppress revolt and keep all the coast tribes under his jurisdiction quiet and at a trifling expense, it seems to me that it would be the part of wisdom if our Government would at least inquire into this system before resorting to old, wornout theories or attempting untried new ones.

There is much more to be said in favor of this proposition, but I fear I have already been too prolix. I will, however, assure you that I am ready, and shall be glad if I can be of any further service to you on the subject of the Indians of Alaska.

Very respectfully and truly yours,

JAMES G. SWAN.

Maj. WM. GOUVERNEUR MORRIS,
Port Townsend, Washington Ter.

This idea of having a commission visit Alaska for the purpose of location, etc., of mission schools is to my mind the best practical method for the accomplishment of the undertaking. It will be observed the honorable Commissioner of Indian Affairs recommends the appointment of a special agent for this purpose. The composition of such commission as Judge Swan suggests, in my judgment, should consist of three persons—an officer of the Army, an officer of the Indian Bureau, who should be a minister of the gospel, missionary, or teacher, and an officer of the Treasury Department.

I think the sending of a commission there during the coming winter would not be opportune. While it is true, as Judge Swan states, that all the Indians will be found at their respective camps at this time of the year, still, in view of the fact of the season being already so far advanced, before such commission could be organized, means provided for their expenses and transportation, the tour of inspection made and report ready for transmission to Congress, that body will have adjourned.

The better plan, I am satisfied, would be to send the commission to Alaska not later than the 1st of next April, with full authority to visit every available point in the Territory and the British missions at Fort Simpson and Metlacatlah, and inquire into everything connected with the subject-matter with which they are charged. This report should be ready to be presented to the Congress which meets in December, 1879, and the present Congress can make the necessary appropriation for the work.

As this is an entire new feature in the management of Indian tribes of the United States, it is one which should not be the result of hasty action, but should be discreetly dealt with, and Congress should be in possession of all the facts and experience of other nations before entering upon the task.

General Howard has for years been urging the establishment of schools and advising Christian ministers devoting themselves to missionary work in Alaska. I am happy to say there are now already in the Territory good and worthy pioneers in this religious work, who are meeting with the most sanguine success. On my way down from Wrangell I stopped at Fort Simpson and visited the Rev. Mr. Crosby, and had a long conversation with him upon the subject of his mission. He informed me the Alaska Indians at Tongas, a very short distance off on the other side of Portland Canal, the dividing line, were very anxious to have a school and church there, and that when opportunity afforded he should go over there and preach to them.

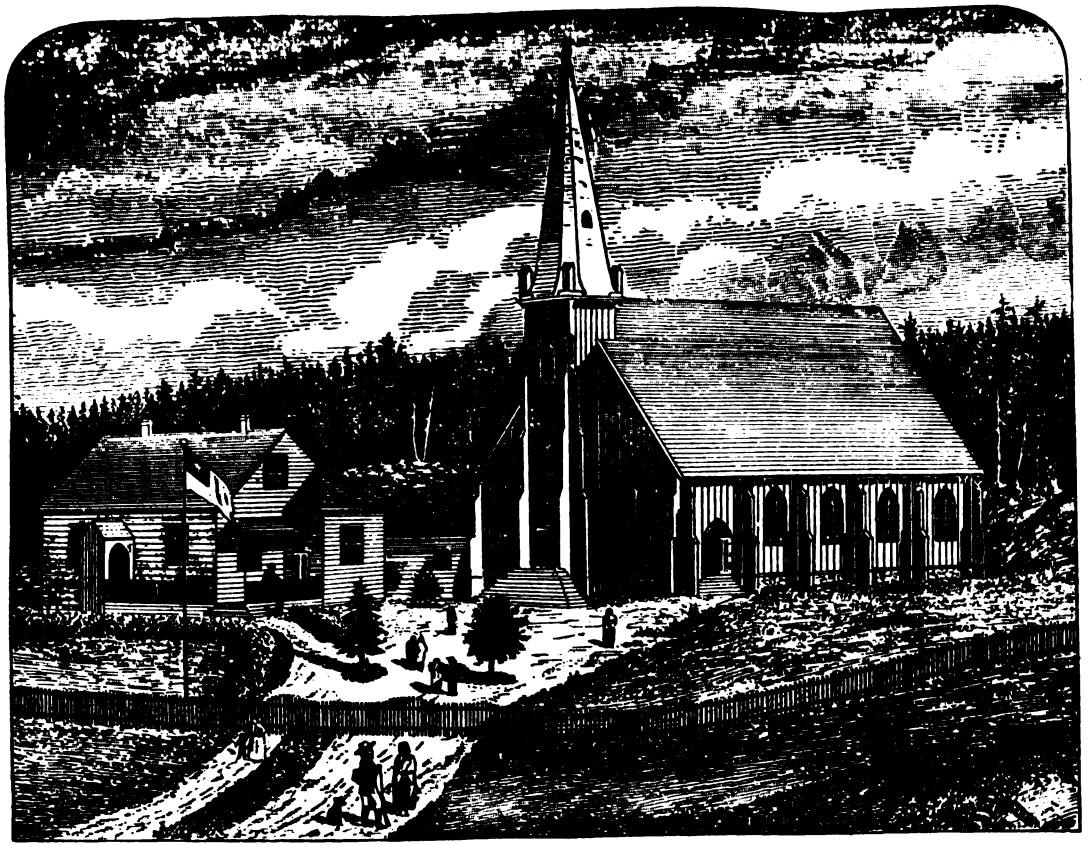


ILLUSTRATION NO. 5.—WESLEYAN MISSION CHURCH AT FORT SIMPSON, BRITISH COLUMBIA.

7 is a very correct representation of a scene of this kind. The dead warrior is Shaks, a chief of the Sitkine tribe at Wrangell, which occurred while I was in Alaska. He claimed to be the last hereditary chief of his race, dating back through a line of noble ancestors of two hundred years' standing. It is asserted they have been the head chiefs of the Sitkines for this period. It was once a powerful tribe, but now the numbers are insignificant.

Shaks was duly buried with every valuable he had. He was a bad Indian, and his spiritual travel to the happy hunting grounds of his forefathers is a cause of great gratulation to the white citizens of Wrangell. He did everything in his power to thwart the efforts of Mr. Dennis in the suppression of hoochenoo manufacture, sneered at the "Church Indians," and scoffed at the missionary school.

The following letter from Surgeon Baily, U. S. A., discloses the state of affairs existing in Alaska at that time. It only goes to confirm my own impressions and experience formed many years later. Dr. Baily earnestly recommends schools as a curative for existing evils:

SITKA, ALASKA TERRITORY, *October 25, 1869.*

MY DEAR SIR: I inclose for your information the report of Actg. Asst. Surg. John A. Tonner, U. S. A., in medical charge of the Indians in this vicinity, in conformity to instructions given him by me. A copy of the same is inclosed.

This report is instructive, and contains important suggestions, which, if carried out, would go far toward improving their condition.

I am satisfied that little or nothing can be done until they are placed under better and more favorable influences. A greater mistake could not have been committed than stationing troops in their midst. They mutually debauch each other, and sink into that degree of degradation in which it is impossible to reach each other through moral or religious influences.

Whisky has been sold in the streets by Government officials at public auctions, and examples of drunkenness are set before them almost daily, so that in fact the principal teaching they at present are receiving is that drunkenness and debauchery are held by us not as criminal and unbecoming a Christian people, but as indications of our advanced and superior civilization.

These Indians are a civil and well-behaved people; they do not want bayonets to keep them in subjection, but they do want honest, faithful, and Christian workers among them; those that will care for them, teach and instruct them in useful arts, and that they are responsible beings. I look upon the different military posts in this department as disastrous and destructive to their well-being; they are not, and can never be, of the least possible use; they are only so many whisky fonts, from whence it is spread over the country. If we ever have trouble with them and become involved in war, it will be found to arise from these causes. From the nature and character of the country, posts never can render the least influence—afford protection against contraband trade. This can only be done by armed vessels, in command of choice men. To go into detail on all points would require pages. You have seen enough to satisfy yourself, and in giving you the inclosed report I only want to add my testimony against what I conceive to be a most grievous error in the management of the Indian affairs in this Territory.

When you go home, send us honest, faithful, Christian workers; not place-seekers, but those who want to do good work for Christ's sake and kingdom. Send men and women, for both are wanted.

When you can do away with the evils spoken of, and which are so evident, and adopt this latter course, then there will be hope, and not until then.

Sincerely, your friend,

E. J. BAILY,
Surgeon, United States Army, Medical Director Department of Alaska.

Hon. VINCENT COLLYER.

In order more fully to understand the establishment of the Alaska missions and how far the work has progressed, I make the following extract from the published proceedings of the missionary board:

MISSIONS UNDER PRESBYTERY OF OREGON.

At a meeting of the Presbytery of Oregon, in session at Astoria, April 3, 1878, it was ordered that a committee of three be appointed to draw up a minute embracing

ILLUSTRATION NO. 7.—THE BODY OF "SHAKS" A STIKENE CHIEF LYING IN STATE.

Dr. L. sent word by Miss Kellogg, and not any written papers, that we had permission to use the Government buildings. I told this to Mr. Francis, the deputy collector, and he let me have the keys to the officers' headquarters. This is a large house, having seven rooms on the lower floor and four in the half story above. In the morning I proposed to Miss K. to procure some furniture for her from Mr. Whitford, who keeps store here, and who bought up every old trap when the soldiers left, and fit up one of the rooms for her; that I would rent a cooking stove and the like, and that we would cook our own meals, which we could eat, and that she could get the eldest daughter of Mr. Cohen to stay with her by night. This was agreeable to her. And Saturday was a very busy day for me. I hired the following articles from Mr. Whitford: A bedstead, 6 chairs, cooking stove, pot, steamer, frying pan, 2 buckets, 2 baking pans, teakettle, ax, saw, hammer, rolling-pin, and potato-masher, and some big spoons. Miss K. bought some cotton stuff and made a bedtick, and Mr. Whitford had a boy to fill it with hay for her. Mrs. Cohen lent her some bed linen, and she made another tick and filled it with feathers, which she bought of Cohen. I bought a cord of dry wood for $2.25; 6 cups and saucers, $1.80; 6 plates, $1.20; 1 knife and 3 forks, 60 cents; 2 bowls, 30 cents. I bought some Indian mats from Wrangell. I borrowed a couple of tables from one of the Government buildings. Fortunately Sitka has a baker shop, and the people buy bread at 10 cents per loaf. Miss K. brought some canned coffee and other things in her lunch basket. I finally heated up the stove, and in a short while we were eating our first meal.

George Kastrometinoff has fixed up a bed in his parlor for me, and every night at 10 o'clock I am there. The boy, Miss K., and Miss Cohen sleep in the house. We buy our food and eat together. This state of affairs will last only till the steamer arrives on her May trip. The collector may come with his family. At any rate, Miss K. will receive her trunk and other goods, and will then be better able to take care of herself.

SUNDAY SERVICES.

Sunday was a beautiful day, and all the scenery was unveiled, for there was scarcely a cloud to be seen. I told the Indians that we should meet in the castle at 11 o'clock. I was much worried with my boy, for when I began to read a few verses, that he might translate them and become familiar with them before speaking to the Indians, he became sullen and would not open his mouth. I coaxed and persuaded, but all was vain. He was like an old ox or balky horse. I had to send for George Kastrometinoff and the Russian half-breed who acted as interpreter for the Russian American Fur Company. We sang many of the Moody and Sankey hymns, and this drew in the people. The castle had been stripped of everything, and there was not a bench nor seat of any kind. The Indians stole in a few at a time; some with their faces painted black, or black and red, or with the whole face black and just one eye painted red, as if in imitation of some clown. Nearly all wore blankets and were in their bare feet. They squatted around the wall and listened attentively to all that was sang and said. Several of the white men were present—Mr. Francis and four or five others. Even Mr. Cohen took an interest in the service, for he went and hunted up the old interpreter for me.

I tried to explain to them the advantage they would have if they knew how to read. I showed them a number of books with illustrations of animals, etc., and told them that if they would learn to read they could then know all about the lion and elephant, and the like. I then told them of God's written book; how I wished them to read it with their own eyes, for it tells us how to live here in this world and how to prepare for an unending life in the world to come. I held my Bible in my hand and ran over the leaves and talked to them of God.

I told them about the school which we should open in the coming week. They paid close attention to all that was said. Sitka Jack was chief speaker. He used to interpret for the Hudson Bay Company, but one can't make much out of his English. He said that they were all pleased with what I told them; they would come to church and school, and try to be good; they were poor, and had blankets only, and no clothes nor shoes. I told them that they must come if they had not even a blanket; that all we asked was that they should try to be clean.

Annah Hoots, the war chief, also made an emphatic speech of approval. He and Jack were dressed in some pretty old clothes of officers who were here. Once in a while we would sing them a hymn. During the service the people kept coming in, and at the close there were 125. Jack asked the people if they liked what we told them, and if they would send their children to school. After a little talking among themselves they answered, "Ah, yes." After more singing, a prayer, and the benediction we left the castle. Cohen and the miners were not prepared to see the Indians assent so heartily to what we proposed to do for them. I felt very much encouraged, for God is surely opening the door to let these people enter.

I have just seen the old Russian Indian and agreed to pay him $5 per month to talk for me. He is really an educated man. I have a Russian New Testament and Psalms. I tried him and he read it right off without any trouble. He was educated by the

Russian-American Fur Company for a priest to the natives, and, on account of something which he had done, was turned out of the church, but his name is still on the parish roll. I shall get a boy who can speak English and Russian, and there are several. I believe that old Kushoff will be of great service to us. He was interpreter twenty-five years for the Russians. He is now destitute of everything. He knows all the habits, superstitions, etc., of the Indians, for he is a half-breed himself, and used to wear a blanket when a boy in the ranch. On the last Sabbath in April we had so many Indians at both services that we could not accommodate them in our schoolroom. Those that could not obtain seats sat on the floor and in the hall about the door. Whitford, Francis, the miners, and several of the citizens were present. Their coming is a good example for the natives. I bought fifteen more benches of Whitford, and on last Sunday we went into the large room B. Jack tells me that when the people come down from the north that both floors will be filled. Last Sabbath was a very bad day, and but a comparative few were out in the morning. The people are thinly clad, and do not care to come out when it is cold and rainy. In the evening the room was well filled. In the morning the pilot, first lieutenant, and second lieutenant were present.

SCHOOLS.

Notice was given that school would be opened on Wednesday morning in the soldiers' quarters. I spent Monday in fixing things around the house in which we live. I hired three Indians on the next day to help me clean out the barracks, which had been heaped in litter. Dick, Bob, and Jack were their names, and I paid them 75 cents, 35 cents, and 50 cents, respectively. We all worked hard and by dark we had things in shape to begin school.

I have determined to fulfill every promise which I make to an Indian. Well, when Wednesday morning came Miss K. was sick and unable to leave her bed. The school was opened at the appointed time, with about fifty of all ages and sexes present. After asking God's blessing upon this new work I began to teach A B C. Now, I can't make you realize the mental vigor of these people. They take right hold and are quick and full of life.

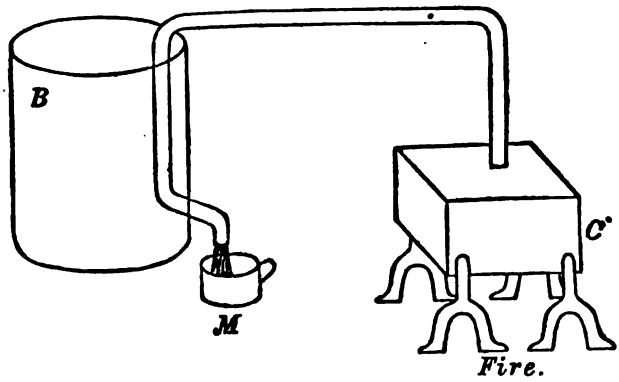
As I write, it is April 27, and we have held school nine days. During this time a dozen have learned their letters and are now reading in the primer. Dick, a bright young man, could spell a few easy words. He is now reading and can do sums in addition. His brother Bob has learned both his large and small letters, can make all the figures, and is beginning to add. They have learned "Come to Jesus," "I need Thee every hour," and "Hold the fort." When the Indians meet in the streets in groups or in the stores they go over their letters or sing the tunes. The miners and citizens have expressed to me their astonishment at these people. The attendance has varied from 45 to 75. On Sabbath morning we had 110 present and in the evening 75. Many of the Indians have gone north to trade and to hunt, and there is no way to obtain the correct number of those who live in the ranch. There are 50 large houses and it will be safe to reckon 20 to each.

Thursday, May 9.—Since writing the above the revenue cutter *Oliver Wolcott*, from Port Townsend, has paid us a visit. She brought up Maj. William G. Morris, who is special Treasury agent for a large part of this coast. I became acquainted with him as I was on my way from Port Townsend to Victoria. He is to make an extended report on the condition of Alaska. He requested me to write a statement of my views. I did so, and in pretty strong language, too. I confined myself to Wrangell and Sitka; showed what was the probable population, the abundance of food, climate, vegetable products, etc. I asserted that the withdrawing of the troops, and leaving no civil authority in this country to protect the lives and property of those who remained, was simply criminal, and to leave the people for another year without any means of settling difficulties would be extremely culpable. The Major is a friend of the Territory, and says that he has stood up for it when Secretary Sherman talked of abolishing it. The officers visited our school and paid their compliments to Miss K. They seemed to be well pleased with all they saw, and some of them spoke words of encouragement to the Indians. I spoke to the Major about our occupying the Government buildings. He said that Mr. Francis had charge of these, and that he presumed there would be no trouble whatever. He and the others invited us on board to dinner last Saturday afternoon. This was a real treat for us. They left here Monday night to return to Wrangell through Peril Straits, on the north end of Baranoff Island. She was not large enough to carry coal for the trip to Kodiak. She is too small even for this service, for they had to pile the coal in sacks on the quarter-deck.

DRUNKENNESS.

The great trouble here with the Indians arises from the use of "hoochenoo." I visited Jack and found two of his stills in operation. This drawing will give you a fair idea of their manner of making this liquor. The can C is a five-gallon coal-oil can,

which is placed on some iron dogs. To this is attached a tin tube, which bends and runs through a barrel of cold water, B. The liquor is caught in a tin cup, M. They sour the molasses with yeast, apples, and the like. When they can't buy molasses they purchase sugar, and if they fail in procuring that they use berries or potatoes for a mash. They were taught this by the soldiers. I have noticed that when an Indian drinks he stays in the ranch, and does not venture out in town. In their own quarters they are fighting almost daily.



CREMATION.

A few days ago I witnessed a sorry spectacle, viz, the cremation of a woman who had been drowned. She and her husband and child were lost in a canoe. The latter two were not found. They kept the body several days, and made diligent search for the others. When the burning began I heard a low, plaintive wail and the shrieks of the women. There were four dry logs, 8 inches in diameter, placed side by side on the ground. The body was placed on these, and then side and end logs built up and covering the top. Light, dry kindling set this pile all in a blaze. I noticed that one woman threw on several blankets. Eight men sang, and beat time with long sticks which they struck upon the ground. Women were squatted promiscuously around, with their elbows planted so as to rest their heads in the palms. The relatives were near the fire. A man and woman kept dealing out bottle after bottle of hoochenoo. This was given to but a few. I noticed that one old woman took glass after glass, and she must have drank over a quart while I was standing. One young man would vomit, and then down with another glass. The singers were not offered any. They were hired, and were to be paid in blankets also. They kept this ceremony up for half a day, going through all their superstitious rites. I went away feeling sad, and prayed that such sights might not be witnessed very often in the future.

May 14, 1878.—The steamer arrived this morning at 7.30 a. m. and brought no letter from you. I have spent about all the money that I started with. I want my next quarter without failure. Please don't disappoint me. Three hundred dollars will, I believe, last me the rest of the year. You know my situation here. I need ready money more than a man who is permanently situated. It will cost me considerable to make the contemplated trips to the Chilcats, Kootsnoo, and other tribes, and I shall be obliged to borrow if I start before July. I shall expect a remittance on the July steamer. Send to Dr. Lindsley, and he will send up by the purser. If you contemplate visiting Alaska, I hope that you will give the matter attention before leaving. I shall do as I did last mail—send your letter and the one to Dr. Lindsley.

A remarkable scene took place on the wharf this morning. A San Francisco firm is about to start a cannery here under the care of Mr. Hunter. He came up with lumber and apparatus and twenty Chinamen. The Indians were not going to let the Chinese land, because they wanted to do the work themselves. One chief pointed to a lad who was dressed in a shabby blanket. He said that if the Chinamen were allowed to come he would soon have no blanket. The Indians themselves wanted to catch the fish and do the canning and what money there was to spend in wages. Mr. Hunter told them that if they learned to do the work well he would send back the Chinamen.

I believe the Indians were right in their demands, for they will do the work as well as the Chinese. I don't care to see many of this race enter this Territory at present. Sitka Jack assured Mr. Hunter that if an Indian could make a hoochenoo-still he could make a can to hold fish.

JOHN G. BRADY.

I also append the following, from pages 11 and 12 of the eighth annual report of the Ladies' Board of Missions, whose appropriate motto is "The Field is the World":

ALASKA.

To our other work, we have this year added Alaska. And where is Alaska? At the southern end of the Alexander Archipelago, with its hundred islands and its volcanic mountains, beautiful beyond description—its name, a corruption of Al-ak-shah, meaning "the great land." And it is that great land which, in 1867, with its native population of 25,000 souls, was turned over by Russia to the United States.

The Greek Church had maintained some missions there, mostly for its own people, but these were removed with its own population; and now that ten years have elapsed since the acquisition of Alaska, thousands are still growing up in ignorance and superstition, and yet it devolves upon the American Church, as a sacred duty which God has laid upon it, to take charge of this large native population, and give them the gospel of Christ along with secular education.

And what is being done? And what shall we say of the noble woman who found herself alone at Alaska, the first woman missionary and the only missionary there? "I came," she says, "at four days' notice, with Dr. Jackson, and when he left I was alone. There is a young Indian here from Fort Simpson, Philip McKay, the Tsimpsheean evangelist, who was raised up from among a degraded fetich-worshiping people to preach the gospel to his own people." But soon after Mrs. McFarland's letter he was removed by death, and everything was thrown into her hands. "In addition to my school," she says, "I have to attend to the Sunday-school services, to visit the sick, and act as counseler to the Indians in all their troubles. As there is no law of any kind—nothing to restrain the people from evil doing—I am called upon to settle difficulties continually, and they are generally willing to abide by my decisions."

As we were the first to enter New Mexico, so are we now the first woman's society to enter Alaska and to take the first missionary there, a woman. Mrs. McFarland, too, is a link to our earliest work in home missions, her husband having been the first missionary who went to Santa Fé, N. Mex., in 1866. And it seemed fitting that now she should come back to our care, as did Mrs. Menaul, at Laguna, who was our first teacher in the school at Santa Fé. Thus the chain broken for a time is again linked in their present work with us.

General Howard speaks as follows:

As the military authority is now held responsible for Indian affairs in Alaska, I have thought it best to make a full statement of my observations, with the hope that speedy legislation may be had to give to our Indians there, as well as others, already said to be in advance of others in point of intelligence, certainly as good opportunities in the way of government and instruction as those have in contiguous British territory.

It is with feelings of great pleasure that I, as an eyewitness, can bear testimony to the zealous efforts of Mr. Brady and the fidelity and zeal with which both Miss Kellogg and himself are endeavoring to engraft upon these heathen savages the benefits of Christian education. Their vocation in the clime and station selected by them presents no attractive features save the consciousness of self-imposed duty. The task is a hard one and presents naught but a field of self-sacrifice and unremitting toil. They are bringing, however, to their work endurance, patience, and fervid Christianity, and every effort they have made is deserving of the greatest commendation; and the prediction is confidently made that the fruits of their efforts can not be but satisfactory and of lasting benefit to the instructed people, and they are in my opinion, with Mrs. McFarland, the pioneers of an undertaking which sooner or later must work a radical change in the condition of the natives of Alaska, and the solution of the ever-vexed Indian question, as far as these coast tribes are concerned.

Judge Swan has fully described the school of Mrs. McFarland, and I can indorse all he says; and attention is here called to the articles written from Wrangel and found in the Appendix, taken from the Port Townsend Argus. These Christianized Indians referred to are her

ls, and every particle of their inspiration has been drawn from
is a lady of great worth and experience, and fully equal to the
culean task she has assumed.

Congress can, in my humble judgment, enact no wiser legislation than appropriating a suitable sum to aid these Christian denominations this all-important work. The field, as Judge Swan properly repre-
ents, is not inviting. Nothing but privation and hard labor can for many years be the lot of a missionary in Alaska, and the reward for a
ife spent in such service as this is not to be found on this terrestrial sphere. It is elsewhere it must be looked for, and where the result is certain and election sure.

SITKA AND WRANGELL—RUSSIAN INHABITANTS, CREOLES, INDIAN POPULATION, ETC.

The following letter from the Rev. Mr. Brady explains itself. Being desirous of getting at the approximate population and nationality of the inhabitants of Sitka and Wrangell, I asked him to write me the result of his observations.

I must not be charged with indorsing the last clause of Mr. Brady's letter, imputing to the Administration culpable negligence. I merely give letters and opinions of others who are on the spot, and in a lengthened report of this character many expressions may creep in which would perhaps be considered as intrusive and impertinent from an officer charged with duty like mine.

It has been thought best to give quotations in full and to reproduce many letters of my own, in order that the Treasury Department may have a succinct and reliable account of the condition of the Territory since it assumed over it exclusive control.

SITKA, ALASKA *May 6, 1878.*

DEAR SIR: You have asked me for my views of the eastern part of Alaska. First, as to the population of Wrangel and Sitka. The native population at Fort Wrangel may be safely reckoned at 500. This last winter 250 miners built huts and remained for the season. The roll of the Greek Church in Sitka for 1876 has the names of 136 males and 140 females; all other whites in the town number 60. This gives a total of 336. The native population of the place will amount to 1,000, for there are fifty large houses, and it is quite safe to count 20 to each one.

The sea is the great storehouse for the majority of these people. Game is abundant. Several gardens have been successfully cultivated in Sitka. Cabbage, cauliflower, potatoes, carrots, leeks, celery, and pease yield well. Mr. Smeigh, of this place, has raised a cabbage which weighed 27 pounds. Though Alaska is no agricultural country, yet there is plenty of land for growing vegetables for a vast population. This can be easily cleared and cultivated. The food of this coast is secure unless the Pacific current changes and rain ceases. Perhaps there is not another spot on the globe where the same number of people do so little manual labor and are so well fed as in Sitka.

The property at these two places amounts to considerable. Fort Wrangell is the depot for the supplies which go to the Cassiar miners, amounting last year to 1,500 tons. Two stern-wheel steamers run from there upon the Stikine River; two British propellers ply between there and Victoria, and *California* stops there with the mails, passengers, and freight. There are several stores there which carry stocks of goods amounting to many thousand dollars. In Sitka there are nine stores, each one having a considerable quantity of goods.

In the face of these facts, the conduct of the Government for the past year toward this country is simply criminal. When the troops were withdrawn, there was no authority of any kind left to protect the lives and property of the people. Indian girls of tender years have been bought by white men in Wrangell; yea, they have been raped and torn asunder without the culprits being brought to justice. The sending of the soldiers to this country was the greatest piece of folly of which Government could be guilty. It will require twenty years to wipe out the evils which were brought to the natives. They knew nothing of syphilis nor did they know to make an intoxicating liquor from molasses; but now they are dying from the

The schools which we have opened prove to us demonstratively that these people have good minds, and are susceptible of a high state of culture. They possess the right sort of tact and ingenuity for a manufacturing people. They are eager to learn, and do whatever a white man, who gains their confidence, has to teach them.

Many sensible miners with whom I have conversed, and who have had great experience with the Indians of the plains, have no hesitancy in pronouncing the Alaska Indians much superior to our western tribes. They are self-supporting, and are always ready to do the hardest kind of labor. They consider the white man a superior being, and they are always on the watch to see how he does things. When they can get citizens' clothes, they wear them. The island system of this coast will at once show any thoughtful man that there is no need of soldiers to keep the natives subdued. The Indians here build their houses close to the water. Destroy their houses and canoes, and they are left helpless. They know this well. There is no reason why these natives should not be made citizens of the United States, when they become as enlightened as they are at Tongas. Fort Wrangell, and Sitka.

For the present, a justice of the peace at this place and one at Fort Wrangel, and a gunboat to cruise about and ready to enforce the civil authority, would be sufficient to protect life and property. It is wrong to regard Alaska as a white elephant. For the Administration to refuse some kind of civil authority before the miners return from Cassiar, would be a piece of the most culpable negligence.

Most respectfully, yours,

JOHN G. BRADY,
Missionary to Alaska.

Maj. WM. G. MORRIS.

The natural surroundings of Sitka are beautiful in the extreme, and equal to the Bay of Naples. There are three well-defined entrances to the harbor, all studded with islands, and the scene vividly represents a Grecian archipelago. It is situate far above the sea level, and with a commanding view of the bay and expanse of the broad Pacific.

Many of the old Russian buildings are in a fair state of preservation, but the whole appearance of the place indicates gradual decay. The stockade, which formerly separated the garrison from the Indian village, is fast rotting away. In some instances the Indians have pulled up some of the palisades and used them for firewood. The abandoned buildings have in many cases been plundered of doors, windows, locks, lead pipe, etc. It is hardly to be considered that anything else could happen. These Indians are petty, pilfering thieves, and when the troops were withdrawn it was like turning loose a lot of unruly schoolboys for vacation. They could not comprehend the changed condition of affairs, and naturally helped themselves to what they wanted, in no greater degree, however, than did the white people and "greasers" living in the vicinity of Camp Verde, Tex., when that post and all the public buildings were abandoned by the United States. No very great amount of actual damage has been done. Sons of the first citizens of a country village have been known to break with stones stained glass windows of churches not occupied; hence we can not expect too much from these half-naked savages. In fact, under all the circumstances, I do not think they have stolen any more than the same number of white men and boys would.

The great thing to be feared in permitting petty thieving and intrusion of this kind is that it emboldens the Indian to greater outrage when he becomes intoxicated, for he attributes his immunity from punishment to fear of him by the white man. An Indian never credits us with any magnanimity of feeling for not punishing him with death and perpetrating upon prisoners all sorts of barbarities and atrocities. These exemptions and the rules of civilized warfare all are summed up by the Indian in one word—fear.

Illustration 8 gives a very fair idea of the present custom-house, with flagstaff and troops drawn up in front. This is a very commodious and comfortable building, far better than in one-half of the small ports of

the country; is in pretty good repair, and will be occupied by the collector and his family. To the right are the barracks formerly occupied by the troops and now used for school purposes. In the rear of the custom-house, on the summit of the hill, will be seen a front view of "The Castle." This was the residence of the Russian nobility, and here resided for many years Prince Maksoutof, who dispensed true princely hospitality. The ball and reception room bears evidence of having at one time been tastefully decorated and a very grand affair. The foundation of the building is fast giving way.

Illustration No. 9 presents the rear view of the Greek church and front view of the old Russian clubhouse. Illustration No. 10 gives a front view of the church and Main street, and a portion of the old military parade ground. No. 11 shows a group of Indians on the rocks at Sitka.

The Greek church is now under the charge of the Rev. Nicholas I. Metropolsky, a Russian priest. It was, until quite lately, the cathedral church of the Pacific Coast. It is cruciform in architecture and is in a good state of preservation. The interior bears evidence of wealth and taste. There are several rare and valuable paintings on the walls. One beautiful representation of the Madonna peculiarly attracted my eye. The decorations of the altar are rich and the carvings are creditable. Valuable silver ornaments exist, and the church service is expensive. The sacerdotal vestments are of heavy cloth of the finest texture and tastefully embroidered in gold. A beautiful hat, worn by the archbishop, attracted my attention, having an exquisite malachite cross of rare value in front. All the surroundings have been supplied at great expense. When Sitka was in the height of her glory, this sanctuary was thronged by officers of the army and navy, Government officials, and some of Russia's proudest nobles; but now a general gloom pervades her church property as well as the whole place.

The condition of the Russians and their descendants to-day in Sitka is truly lamentable. They exist in a most pitiable state of poverty; in fact, most of them are in absolute want. They are subjected to all kind of ill treatment and contumely by the Indians. They have no means of livelihood save what the sea brings forth and small patches of cultivated ground. There are no enterprises which furnish employment for their labor, and save a few who are working in some of the mines, and others who have means, the majority are in a state of starvation.

These people are, at least, entitled to protection. There are a few who are in better circumstances, and who own property and are in business and trade. They are respectable and worthy people and should be protected in their lives and property. They are entitled to this by the terms of the treaty, and I learn that lately a petition has been forwarded to the Emperor of Russia, stating how utterly the United States have failed to fulfill their treaty stipulations.

The third article of our treaty concerning the cession of the Russian possessions in North America contains the following, relative to subjects of Russia:

> The inhabitants of the ceded territory, according to their choice reserving their natural allegiance, may return to Russia within three years; but if they should prefer to remain in the ceded territory, they, with the exception of uncivilized native tribes, shall be admitted to the enjoyment of all the rights, advantages, and immunities of citizens of the United States, and shall be maintained and protected in the free enjoyment of their liberty, property, and religion.

When the Russians owned the country, they held the Indians in subjection and protected her citizens by soldiery and naval vessels. But to-day there is absolutely no protection whatever for those who have

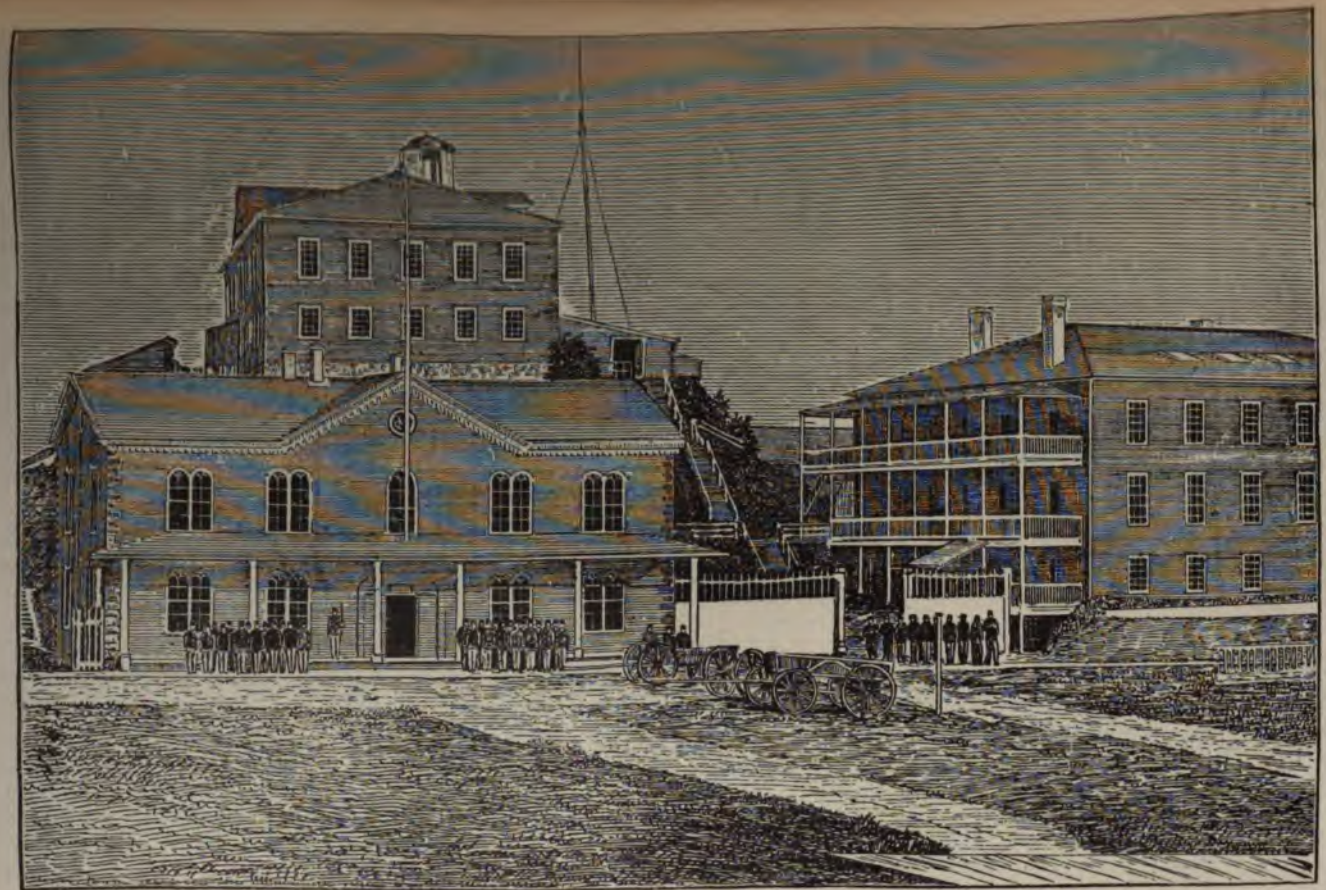


ILLUSTRATION NO. 8.—CUSTOM-HOUSE AND FRONT VIEW OF THE CASTLE, SITKA.

elected to remain in Alaska; they have the barren terms of the treaty to chew, and that is all. It can hardly be contended we have fulfilled these treaty stipulations. Since the withdrawal of the troops from Alaska there has absolutely been "free enjoyment" of nothing.

When in Victoria, British Columbia, during February last, the community were very much excited over the condition of affairs in eastern Europe, and the prospect of impending war between the mother country and other European powers. To add fuel to the flame, without any premonition whatever, with top-gallant masts down and in fighting trim, a Russian corvette anchored abreast of the naval dockyard. This gave rise to much comment, and a reason was sought for this unexpected appearance at that critical time. The Russian commander was fully equal to the occasion, and with a great deal of sang froid informed his questioners that he had sought the harbor temporarily, his vessel being in distress, having carried away some of the head gear, etc.; that the reason for his being in these latitudes was, he was en route to Sitka to examine the condition of the Russians there, who were represented to be in a deplorable condition; that the United States had violated its treaty with Russia, and that he had been directed by his Emperor to make full report with a view to holding our Government to a strict accountability. Be this as it may, it had for its foundation a most plausible theory, and the Victorians could believe it or not as they pleased. This vessel did not go to Sitka as represented, but returned direct to San Franciso, the commander on his arrival at the latter port claiming that the weather was so tempestuous he deemed it prudent to postpone the voyage to Sitka to a more pleasant season of the year. Both hypotheses are acceptable. He might have been ordered to do just what he states, and the stress of heavy weather justified his return without visiting his port of alleged destination.

The following extract from a letter written by a correspondent of the Chicago Tribune, dated San Francisco, Cal., January 28, is herewith given:

In regard to the removal of troops from the Territory, General McDowell, than whom there is no more conscientious, high-minded officer in the service, sufficiently refutes the charge of conspiracy against the Alaska Company to accomplish that end. I do not claim to report the exact language of the General, but in substance he said:

"The removal of troops from Alaska was at my own suggestion, and was done purely on the ground of economy. I am aware that certain parties had personal interests in having the troops left there, especially those who would be benefited by transporting them thither and return, and of furnishing and transporting supplies; but, as far as the Alaska Commercial Company is concerned, all the gentlemen of that company with whom I talked seemed supremely indifferent whether the troops were removed or allowed to remain. The company's interests lie nearly a thousand miles west of Sitka, at St. Paul and St. George islands, and are wholly unaffected by the troops one way or another."

The General proceeded to say that as a citizen of the United States he was opposed to the purchase of Alaska from the first. He considered the acquisition of detached territory a detriment rather than a benefit to our country, especially a region of such little value as Alaska, separated from the States by such a long stretch of dangerous sea. The General has never been there in person, but, from such information as he has at hand, he regards the Territory as of little value commercially; and he stated that he would consider the United States Government doing a wise thing to dispose of it—even giving it away, if no purchaser could be found, to some country that would guarantee the inhabitants the protection which, under the treaty with Russia, they have an undoubted right to demand of us. And right here, said the General, was a point which had escaped his attention when he recommended and secured the withdrawal of the troops; that is, that our Government owes protection to the dozen or more whites and several hundred scrawny half-breeds who were there at the time of the purchase; and in that view of the case, viz, that the United States bound itself to afford these people protection, he had already recommended again that troops be returned. Not that there

was any especial danger to fear from the Indians more than from the whites toward each other; but as there was no civil law whatever in the whole region, embracing an area about one-sixth the size of the United States and Territories, it seemed right that a sufficient military force should be at hand to enforce the authority of the Government if necessary to do so. About three companies, he thought, would be required for that purpose. "But on the whole," reiterated the General, "I consider it would be better for the Government to dispose of it to some country that is ambitious to acquire more territory." So much for General McDowell.

If General McDowell is correctly reported, it seems he discovered at a very late day these people were entitled to protection, and there is no disguising the fact such is his belief at present. Major-General Schofield, in commenting upon a case which arose in Alaska, used the following language:

I do not think it incumbent upon me to even express an opinion upon this subject; but I have no hesitation in recommending that Congress provide by law for the Territory of Alaska a government suited to its condition.

It is a matter of surprise that so eminent and highly educated a man as General McDowell should be quoted as having declared in favor of abandoning the country; and the only reasonable hypothesis for his giving vent to such an extraordinary opinion is contained in the information furnished by the reporter, that he (General McDowell) has never been to Alaska.

This is the great trouble in regard to the Territory. There has been such willful, deliberate, and persistent lying about it by penny-a-liners and magazine writers, and other itinerant scribblers who seem to take a satanic delight in decrying and writing it down, that it is no wonder that as educated and intelligent a man as General McDowell should be misled.

General Howard thinks differently. In his report he says:

I wish to renew my earnest recommendation that, by proper and speedy legislation, Alaska be attached as a county to Washington Territory, or in some other way be furnished with a government as the treaty with Russia, in the transfer, plainly contemplated.

It must be remembered that I am confining my remarks to southeastern Alaska. I now quote from Hon. W. S. Dodge upon the question of citizenship of the Aleuts who reside to the westward. Of the Aleutian Islanders and their prospective rights under our Government, Mr. Dodge says:

There are, as statistics from the Russian records fully show, 7,000 Aleutian and 3,000 creole population. "But," say our enemies, "the Aleutians are Indians, and not entitled to citizenship." Let us see.

The treaty of cession between Russia and the United States guarantees, in article 3, that "the inhabitants of the ceded territory, according to their choice, reserving their natural allegiance, may return to Russia within three years; but if they should prefer to remain in the ceded territory, they, with the exception of uncivilized native tribes, shall be admitted to all the rights, advantages, and immunities of citizens of the United States, and shall be maintained and protected in the free enjoyment of their liberty, property, and religion."

Then, again, in the same article, it says: "The uncivilized tribes will be subject to such laws and regulations as the United States may, from time to time, adopt in regard to aboriginal tribes of that country."

Thus, in the treaty, it is clearly manifested that a distinction in government was to be made, and it shows that the Russian Government observed jealous care in securing to all but the savages the rights of American citizenship. And the distinction between the civilized and uncivilized is most positively indicated in the "Russian memorandum marked A A," drafted by Mr. Seward at his request, of August 6, 1867, by the Russian minister of foreign affairs at St. Petersburg, August 31, 1867.

The Aleutian population, who are mostly inhabitants of the islands of Alaska, are of Asiatic origin. The Asiatic race is always classed among the civilized nations. These people reside in towns, and live principally from the products of the fur seal, sea otter, and fox. They have a language of their own, but, from long association

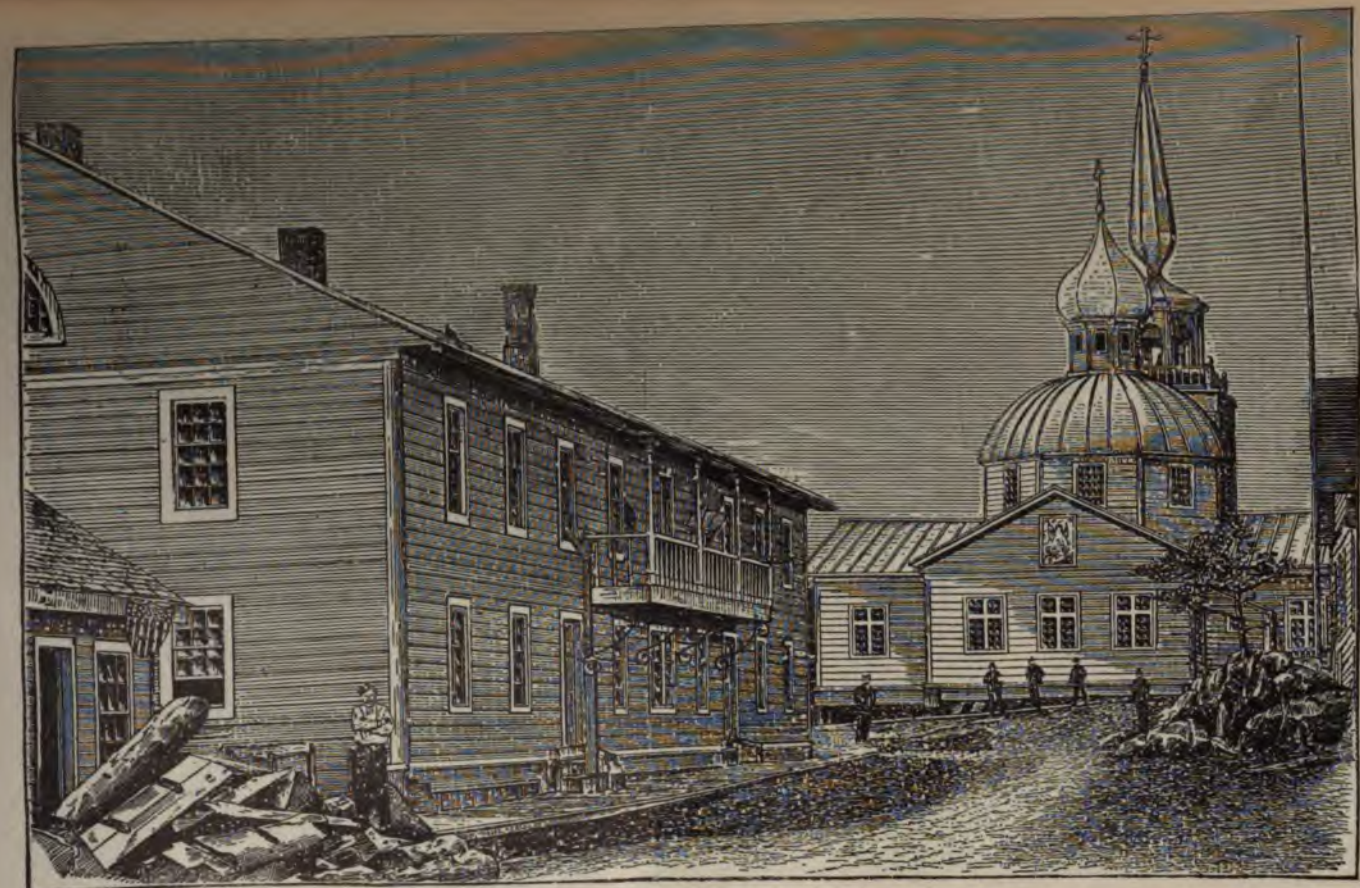


ILLUSTRATION NO. 9.—REAR VIEW OF THE GREEK CHURCH AND FRONT VIEW OF THE OLD RUSSIAN CLUB-HOUSE AT SITKA.

words, which being translated, a very thin, transparent lie would appear. I worked with him for a long time; it was diamond cut diamond, but finally seeing he could not hoodwink me, he took another tack, and almost virtually asked me "What are you going to do about it?" and this after acknowledging he had the lad at his home. I could not order him to give up the boy, because I had not the authority to enforce such order, and of this fact I verily believe the rascal was as fully conversant as myself; for his whole demeanor showed defiance, contempt, and malignity.

I asked him how he would like "a man-of-war"—the usual term applied to a revenue-cutter or gunboat among the natives—to appear off his village and shell it, if he did not give up the boy. A quiet smile of ironical contempt came over his face when he replied he would not like it; the boy could come away whenever he wanted.

To my telling him he must bring the boy back to Sitka, he positively refused. At last I told him this boy was not a Boston (American) but a King George (English) Indian; his demeanor instantly changed. I found I had at last struck the keynote, and that, while I could not command his respect, I could play upon his fears. For the Stars and Stripes he evidently, though he did not outwardly manifest it, had the most unmitigated scorn, but for a British man-of-war he had a holy horror. He did not want an English gunboat near his village. He never knew before the boy came from British Columbia—a lie, of course—and promised to deliver up the boy at an early date—another lie. I arranged with the steamship company for his free passage to Victoria, and informed Colonel Powell, Indian commissioner, of what I had done. The Colonel promised to send the boy to his tribe. This was in May, and the Nawitta "tenas man" has not yet put in an appearance, and my firm belief is that Awk scoundrel will murder him before he will give him up. If this had occurred on British soil he would have been free long since or the village laid in ashes.

It is the easiest thing in the world to extinguish slavery among the coast Indians, but in the interior it will be different. Construct the cutter hereafter proposed to be built, and there will be no difficulty in setting free every slave in southeastern Alaska, and that without bloodshed. The very presence of such a vessel will have the required effect.

AGRICULTURAL PRODUCTS AND CLIMATE.

So much has been said about the soil and climate of Alaska, and so widely different are the statements, that this subject must be approached with caution, for when the public mind has, through a series of years, been educated to believe the unreliable and irresponsible stories which have been scattered abroad and retailed in print, it is proper, when refutation is made, to present facts from personal observation and indubitable testimony, so as to invite criticism and challenge contradiction.

It is unnecessary when writing about a country as naturally inhospitable as Alaska to depreciate it. The truth is sufficient to demonstrate that the whole face of the Territory is most uninviting, but as there is no excellence without labor, and the agricultural and mineral resources, fisheries, and timber, can not be developed and made useful and profitable to mankind without hard labor, the investment of capital, and wear and tear of brain and muscle, it can safely be advised, those who do not feel equal to the certain prospect of hard work, energy, and industry ahead, to stay away and believe implicity all the trash they read and hear about the country, promulgated by those who are seeking to retard its settlement.

my patient effort to endeavor to disclose in what respects Mr. Elliott has been mistaken in reference to southeastern Alaska; for it will be observed he makes no distinction between any portions of the purchase, but makes one clean sweep of the whole Territory in his work of demolition.

At Wrangell and vicinity many of the most hardy vegetables, such as potatoes, turnips, cabbage, carrots, parsnips, radishes, lettuce, celery, cauliflower, and pease, have been grown of excellent quality, size, soundness, and flavor. Oats and barley will mature, but whether they will prove a profitable crop remains to be determined. The other vegetables already mentioned, especially potatoes, cabbage, and turnips, have been successfully and profitably grown. It has been incorrectly stated that nowhere in Alaska will the cereals come to maturity. Results point directly to an opposite conclusion.

Timothy and clover grow to perfection. A species of red-top grows on the marsh lands and makes excellent hay. Twenty tons of this were cut and cured last year and found a market at Wrangell. It will be observed that this is the point where are gathered the pack trains for the Cassiar mines, and where the cattle and sheep are landed from Oregon and British Columbia which go up the Stikine River, and pack trains frequently winter at Wrangell.

With a comparatively small amount of labor hundreds of acres of land in the vicinity of Wrangell could be drained and brought under cultivation, on which vegetables could be grown to supply the wants of a large population. I have seldom seen finer soil; it is rich, black, and alluvial, and will not wear out. It seems admirably adapted for the production of all kinds of roots for soiling cattle, and in my opinion the large red and white beet for feeding stock would grow here to an immense size, and would not be lacking in nutritious and saccharine matter.

The Indians inhabiting the many islands about Wrangell, and to the southeast and southwest, annually raise many tons of potatoes and turnips for their own consumption, and last fall sold to the merchants of Wrangell and traders over ten tons of potatoes and turnips, which they retailed to their customers at 3 cents per pound.

These Indians are not pastoral in their pursuits or inclined to agriculture. They are a different race altogether, living by fishing and the profits of the chase; hence they only cultivate as much land as will afford them the vegetables they require for their own consumption.

Captain White, of the revenue marine, an accomplished officer of undoubted veracity, who has seen much service in Alaska (see his views in the Appendix), says:

> On Unalaska the grass is 6 to 8 feet high and so thick that it must be parted to get through. It is so on Kodiak. The small Russian cattle that live entirely upon it are as fat as seals. They live on it all the year, needing no shelter but the ravines. The wild pea vines grow 6, 8, and even 12 feet long, furnishing choice food for stock.

Again, in speaking of the country to the westward, he says:

> The region is chilly, even in summer, in the ravines hid from the sun; but parts open to the sun, though frosts and snow are on the mountains, produce luxuriant vegetation, and fruits like blackberries, larger than the Lawton, and whortleberries abound in their season.

While at Klawack, Prince of Wales Island, on the 12th of May last, I beheld a herd of cattle and milch cows grazing in the bottom, close to the salmon cannery. They were fat and in good condition, and I was informed by the manager that they had run out the whole of the previous winter, and supported themselves entirely without extra feed,

ive the usual amount given in all climates to cows milked daily. A rge meadow furnishes all the hay which is needed, and there is land nough cleared in the vicinity and available to produce hundreds of ons of red-top hay if required. The gardens are productive and the oil is of the best description. Poultry thrives and does well.

Klawack is a most beautiful and romantic spot, situate upon a handsome and perfectly land-locked bay, surrounded by mountains covered with snow, with the most exquisite scenery and vegetation below. It must be seen to be thoroughly appreciated. No description or brush of the artist can do it justice, and to use the words of Mr. Oakford, a journalist who has lived many years in England, and who accompanied me on my visit, "There are many English noblemen who would cheerfully give £100,000 to have 200 acres of that landscape, water, mountain, valley, and all transferred bodily to their estates."

The officers of the Army and enlisted men were always well supplied with vegetables from the post gardens on Japonsky Island, opposite Sitka. These gardens I have visited, and found them well situated, with a southern exposure. The soil of excellent quality.

Judge Swan and the Rev. Mr. Brady both speak, from experience, of the excellence and size of the vegetables grown in the vicinity of Sitka.

To be sure, no great attention has been paid to agriculture since our acquisition, and the reasons for this are so very obvious that it is hardly necessary to enumerate them. With a scant population, unaccustomed to agricultural pursuit, a forbidding country, no grist mills, and a thousand reasons why importations of breadstuffs should not be had, is it to be wondered that no very favorable results have been had and but few trials made?

It is not necessary that a country must excel in agricultural products to be great. Look at all New England; epitomize every ton, pound, and ounce of grain of all kinds raised, and see what it amounts to. Take, for example, one single State, Massachusetts, which in the year 1876 produced in wheat only 17,500 bushels, of the value of $22,750. This cereal is selected, as we are informed it will not grow in Alaska. How much bread would that yield furnish.

It matters not whether Alaska can succeed in successfully maturing the principal cereals if she produces from her mines, fisheries, and forests the wherewithal to pay for them. The rich fields of California, Oregon, and Washington Territory are near at hand to supply her, as they are now doing the old countries of Europe and the world at large.

It is useless to decry the country because imagination condemns it as wholly unproductive. Sufficient testimony has been adduced to demonstrate that in southeastern Alaska, at least, the contrary is diametrically the case.

For further information in regard to western Alaska, I will here quote from the report of Capt. William H. Dall, of the United States Coast Survey, made to the Commissioner of Agriculture in the year 1867. Captain Dall, in speaking of the Yukon territory, says:

It is quite possible to conceive of a locality depressed, and so deprived of drainage, that the annual moisture derived from the rainfall and melting snow would collect between the impervious clayey soil and its sphagnous covering; congeal during the winter, and be prevented from melting during the ensuing summer by that mossy covering, which would thus be gradually raised. The process annually repeated for an indefinite period would form an ice layer which might well deserve the apellation of an "ice cliff," when the encroachments of the sea should have worn away its barriers and laid it open to the action of the elements.

The lesson that the agriculturist may learn from this curious formation is that a healthy and luxuriant vegetation may exist in immediate vicinity of permanent ice, bearing its blossoms and maturing its seed as readily as in apparently more favored

situations, and hence that a large extent of northern territory long considered valueless may yet furnish to the settler, trader, or fisherman, if not an abundant harvest, at least a very acceptable and not inconsiderable addition to his annual stock of food, besides fish, venison, and game.

He also writes thus of the fodder, cattle, and fruits produced:

FODDER.

The treeless coasts of the Yukon territory are covered, as well as the lowlands of the Yukon, with a most luxuriant growth of grass and flowers. Among the more valuable of these grasses (of which some thirty species are known to exist in the Yukon territory) is the well-known Kentucky blue grass (*Poa pratensis*), which grows luxuriantly as far north as Kotzebue Sound, and perhaps to Point Barrow.

The wood meadow-grass (*Poa nemoralis*) is also abundant, and furnishes to cattle an agreeable and luxuriant pasturage.

The blue-joint grass (*Calamagrostis canadensis*) also reaches the latitude of Kotzebue Sound, and grows on the coast of Norton Sound with a truly surprising luxuriance, reaching in very favorable localities 4 or even 5 feet in height, and averaging at least 3. Many other grasses enumerated in the list of useful plants grow abundantly, and contribute largely to the whole amount of herbage. Two species of *Elymus* almost deceive the traveler with the aspect of grain fields, maturing a perceptible kernel which the field mice lay up in store.

The grasses are woven into mats, dishes, articles of clothing for summer use, such as socks, mittens, and a sort of hats, by all the Indians, and more especially by the Eskimo.

In winter the dry grasses, collected in the summer for the purpose, and neatly tied in bunches, are shaped to correspond with the foot, and placed between the foot and the seal-skin sole of the winter boots worn in that country. There they serve as a nonconductor, keeping the foot dry and warm, and protecting it from contusion to an extent which the much-lauded moccasins of the Hudson's Bay men never do. In fact, I believe the latter to be, without exception, the worst, most uncomfortable, and least durable covering for the foot worn by mortal man.

Grain has never been sown on a large scale in the Yukon territory. Barley, I was informed, had once or twice been tried at Fort Yukon, in small patches, and the grain had matured, though the straw was very short. The experiments were never carried any further, however, the traders being obliged to devote all their energies to the collection of furs. No grain had ever been sown by the Russians at any of the posts. In the fall of 1867 I shook out an old bag, purchased from the Russians, which contained a handful of mouse-eaten grain, probably wheat. The succeeding spring, on examining the locality, quite a number of blades appeared, and when I left Nulato, June 2, they were two or three inches high, growing rapidly. As I did not return, I cannot say what the result was. Turnips and radishes always flourished extremely well at St. Michael's, and the same is said of Nulato and Fort Yukon.

Potatoes succeeded at the latter place, though the tubers were small. They were regularly planted for several years until the seed was lost by freezing during the winter. At St. Michael's they did not do well. Salad was successful; but cabbages would not head.

The white round turnips grown at St. Michael's were the best I ever saw anywhere, and very large, many of them weighing 5 or 6 pounds each. They were crisp and sweet, though occasionally a very large one would be hollow-hearted. The Russians preserved the tops also in vinegar for winter use.

CATTLE.

I see no reason why cattle, with proper winter protection, might not be successfully kept in most parts of the Yukon territory. Fodder, as previously shown, is abundant. The wild sheep, moose, and reindeer abound, and find no want of food.

A bull and cow were once sent to Fort Yukon by the Hudson Bay Company. They did well for some time, but one day, while the cow was grazing on the river bank, the soil gave way and she was thrown down and killed. Due notice was given of the fact, but for a year or two the small annual supply of butter in the provisions for Fort Yukon was withheld on the ground of there being "cattle" (to wit, the bull) at that post. Finally the commander killed the animal, determined that if he could not have butter he would at least have beef. It will be remembered that this point is north of the Arctic Circle, and the most northern point in Alaska inhabited by white men.

FRUITS.

There are, as might be supposed, no tree fruits in the Yukon territory suitable for food. Small fruits are there in the greatest profusion. Among them may be noted red and black currants, gooseberries, cranberries, raspberries, thimbleberries, sal-

moonberries, blueberries, killikinik berries, bearberries, dewberries, twinberries, service or heath berries, mossberries, and roseberries; the latter, the fruit of the *Rosa cinnamomea*, when touched by the frost, form a pleasant addition to the table, not being dry and wooly, as in our climate, but sweet and juicy.

All these berries, but especially the salmonberry, or "morosky" of the Russians (*Rubus chamæmorus*), are excellent antiscorbutics. They are preserved by the Esquimaux in large wooden dishes or vessels holding 5 gallons or more; covered with leaves, they undergo a slight fermentation, and freeze solid when cold weather comes. In this state they may be kept indefinitely; and a more delicious dish than a plateful of these berries, not so thoroughly melted as to lose their coolness, and sprinkled with a little white sugar, it would be impossible to conceive.

The Russians also prepare a very luscious conserve from these and other berries, relieving the sameness of a diet of fish, bread, and tea with the native productions of the country.

Furthermore, Captain Dall is quite pronounced in regard to the Aleutian Islands, and uses the following language:

There is no timber of any kind larger than a shrub on these islands, but there does not appear to be any good reason why trees, if properly planted and drained, should not flourish. A few spruces were, in 1805, transplanted from Sitka, or Kadiak, to Unalaska. They lived, but were not cared for, or the situation was unfavorable, as they have increased very little in size since that time, according to Chamisso. The grasses in this climate, warmer than that of the Yukon territory, and drier than the Sitkan district, attain an unwonted luxuriance. For example, Unalaska, in the vicinity of Captains Harbor, abounds in grasses, with a climate better adapted for haying than that of the coast of Oregon. The cattle were remarkably fat, and the beef very tender and delicate; rarely surpassed by any well-fed stock. Milk was abundant. The good and available arable land lies chiefly near the coast, formed by the meeting and mingling of the detritus from mountain and valley with the sea sand, which formed a remarkably rich and genial soil, well suited for garden and root-crop culture. It occurs to us that many choice sunny hillsides here would produce good crops under the thrifty hand of enterprise. They are already cleared for the plow. Where grain-like grasses grow and mature well, it seems fair to infer that oats and barley would thrive, provided they were fall sown, like the native grasses. This is abundantly verified by reference to the collections. Several of these grasses had already (September) matured and cast their seed before we arrived, showing sufficient length of season. Indeed, no grain will yield more than half a crop of poor quality (on the Pacific Slope) when spring sown, whether north or south.

The Russians affirm, with confirmation by later visitors, that potatoes are cultivated in almost every Aleutian village; and Veniaminof states that at the village in Isanotsky Strait they have raised them and preserved the seed for planting since the beginning of this century, the inhabitants of this village by so doing having escaped the effects of several severe famines which visited their less provident and industrious neighbors.

Wild pease grow in great luxuriance near Unalaska Bay, and, according to Mr. Davidson, might be advantageously cultivated. This species, the *Lathyrus maritimus* of botanists, grows and flourishes as far north as latitude 64°. The productions of all the islands to the westward resemble those of Unalaska.

In September, says Dr. Kellogg, the turnips here were large and of excellent quality; carrots, parsnips, and cabbages lacked careful attention, but were good. Wild parsnips are abundant and edible through all these islands.

From the reports of Dr. Kellogg and others there appears to be no doubt that cattle can be advantageously kept in the Aleutian district providing competent farmers will take the matter in hand. Hogs were placed on one of the islands near Chamobour Reef in 1825, and fattened on the wild parsnips and other native plants, multiplying rapidly. They were afterwards destroyed.

It is not considered necessary to pursue this inquiry further, for sufficient has been shown at least to have put Mr. Elliott upon his guard before he launched forth such a wholesale invective against the agricultural resources of Alaska. If ever Alaska does become settled, and the population demand the necessaries as well as the luxuries of vegetable life, ready and willing hands will be found forthcoming to produce them.

Since the foregoing was written I have been visited by Major Berry, late collector at Sitka, who has been cruising around the coast of southeastern Alaska during the past summer, and obtained from him the following information:

In August last, while exploring Chichagoff Island, he discovered a

river, and following it toward its source he came across a large body of prairie land, at least 25,000 acres in extent; grass was growing upon it 5 feet high, and it was covered with berries and other luxuriant growth. He also found alder trees 3 feet in diameter and full 30 feet high before a branch appeared.

This spot is about 80 miles north of Sitka. The river runs through the land, having its source in the mountains adjacent, and empties into Chatham Straits.

CLIMATE.

Some idea of the climate of Alaska necessarily must have been formed from reading the foregoing pages upon the agricultural prospect of the Territory. Mr. Elliott very naively remarks:

> We have learned enough of the country and climate by this time to know that the lands and fishing waters now occupied by the natives of Alaska will never be objects for the cupidity of our people.

We have learned nothing of the kind; and it is a piece of intense supererogation to advance any such wholesale proposition. It has been frequently stated that, with the country to the westward, embracing the Aleutian Islands and the whole of western Alaska, extending as far as Bering Sea, I have no personal knowledge, but in regard to southeastern Alaska I do profess to know something from personal observation as well as carefully gathered concurrent testimony.

Mr. Elliott sweeps over the whole breadth and expanse of Alaska in his work of havoc, sparing no portion thereof, and he can not complain if he is taken to task for what he so deliberately and frequently enunciates. Mr. Vincent Collyer referred to this as follows:

> To give you an idea of the climate of Alaska, I inclose you a copy of meteorological register, given by Dr. Tonner, of the Indian Hospital at Sitka. By that record you will see that there were but 7 days of snow in 1868, while there were 100 days fair, 100 days rainy, and the remainder cloudy. The thermometer at no time was lower than 11° above zero in winter, nor higher than 71° F. in summer.
>
> You will perceive that the thermometer varies much less than with us, and that, though there is much rainy weather there, there are also many clear days. And Sitka, where this record was kept, is the most subject to rains of any place in the Territory.

The rainfall at Sitka annually is about the same as that at Astoria, Oreg., Neah Bay, and Fort Canby, Wash. Ter., situated at the mouth of the Columbia River.

No one will pretend to deny that the climate of Alaska is inhospitable; the logic of its geographical position naturally suggests such a fact to be patent; but that it is so severe and rigorous in southeastern Alaska during the winter season as to prevent the working of its mines and the following of other industrial pursuits is persistently negatived. This will be further noticed when the mineral resources are descanted upon. As for the fisheries, such a statement is simply absurd and preposterous. The Newfoundland fisheries, which produce fish similar to Alaska, are not carried on during the winter; nowhere in the same parallel of latitude or degrees of latitude are fisheries conducted during the winter months; hence a statement of this kind is only calculated to mislead the reader, and expose the imperfect knowledge of the author.

The climate of Prince of Wales Island, Wrangel Island, in fact on all the islands in the Alexander Archipelago, and all along the whole coast from the Chilcat country, 200 miles to the north of Sitka, and extending south as far as Fort Simpson, British Columbia, is not intensely cold in winter; on the contrary, it is far milder than in many of the New England States, and the reason is simply due to the analysis given by

rally improvident, seldom lay by anything for a rainy day; hence if bad luck, sickness, or reverses overtake them, they have to depend upon the storekeeper and boarding-house to keep them afloat until they "can make a raise." When the miner gets down to "bed rock," financially, it is the time when he gets trusted for such additional tools and provisions as he may need, and strikes out boldly into the mountains to prospect for quartz.

It is my purpose to endeavor to present such reliable information in regard to the mineral resources of Alaska as will put miners and capitalists upon inquiry. Nothing will be given in exaggeration, and no means exerted to place in anything but a true light the real facts.

First, however, we will take up the converse of the proposition by quoting Mr. Elliott, who says:

> If gold or silver is discovered in Alaska, it must be of unusual richness or it will never support any considerable body of men up there, so far away from the sources of necessary supply. The reputed Alaska gold mines are not in Alaska at all, but on the Stikine River in British Columbia, being over 180 miles to the eastward of the boundary between the two districts; but as the Stikine River, to reach the Pacific with its rapid flood, has to pass through 30 miles of Alaskan soil and rock, so the miners visit Alaska in this way only, as they go up and down the river from Cassiar to Victoria, the Sound, and California every spring and fall.

This statement betrays the most inexcusable ignorance upon the part of Mr. Elliott in regard to mining matters. The bare idea that mines in Alaska must be of "unusual richness" in order to make them pay is as farcical as some of his other statements.

I venture to assert, if there can be found any well-defined quartz lode within 25 miles of Sitka, readily accessible to wood and water, and adjacent to the coast, which will yield ore that will mill $25 in gold, net, per ton, it will be one of the richest mines on the Pacific Coast. I select Sitka because it is the focal point at present, but mines will be discovered several hundred miles to the southward, down the coast nearer British Columbia, Washington Territory, and Oregon.

It is a most mistaken idea because Alaska is so far distant that her mines will not pay. The Cassiar mines attract a large number every year, the greater portion of whom are old miners who own claims and work them as long as they can each year, and return every year to complete the work and search for new diggings. The prediction is ventured there will at no very distant day be discovered in Alaska full as rich diggings as now exist in Cassiar. The formation of the country is similar, and no valid reason can be given why such deposits do not exist.

Mr. Elliott speaks of the Cassiar mine being known as the "reputed Alaska gold mines." This is the first intimation I have ever heard of any such misnomer. Any boy 12 years of age on the Pacific Coast knows to the contrary, and it smacks very much as if it was spread out thus diligently for Eastern consumption.

But little has been done in placer mining in Alaska. Prospectors are afraid to venture into the interior in the present unsettled condition of affairs. The coast islands are not the spots where large surface deposits are expected to be found. These will be discovered on the mainland. There are several streams which debouch from the Great Yukon to the eastward, through Alaska and into British Columbia, draining a vast expanse of country; and experienced miners are convinced that rich placer deposits can not fail to exist.

In May last I met at Sitka a party of hardy and well-known miners, Rath Brothers, of Victoria, and Mr. Bean, of California, men of means and intelligence, who were fitting out an expedition for prospecting the interior of Alaska. They had everything essential for a successful voyage—well supplied with tools, provisions, arms, and money. They

A strange find has lately been had at Cassiar. On the top of a high mountain a man out prospecting came across a small gulch abounding in the richest specimens of placer gold. He at once staked out a claim, and was followed by all Cassiar who could get there. The time for working, however, was almost over, owing to the rapid advent of snow, but in the short time allowed, however, the yield was incredible. One man dug up a nugget weighing 30¼ ounces of pure gold, and several other large nuggets were found. The yield per day to the hand was very large; everyone made money rapidly, and all who had the good fortune to get claims have done well. These miners will return in the spring to work again their claims. Heretofore placer mines have always been found in the beds of streams, in the valleys, etc. The idea of finding surface diggings on the top of a mountain over a thousand feet high never occurred to a mining prospector. If this is the case at Cassiar why should not the like follow in Alaska? No tangible reason can be given in the negative; on the contrary, everything points to the same conclusion. The upheaval in this volcanic region seems to have been greater than on any portion of the Pacific Coast, and discoveries have already been made in California which set the laws of geology at defiance, and it is fair to infer that in curious, indescribable, and unknown Alaska the scientific and civilized world will yet stand aghast at the astounding results which will be produced from the most singular of all discoveries and unaccountable formations.

Some little attention, however, has been paid to quartz mining. First will be noticed the Stewart ledge, which was discovered and located while the military were at Sitka. A company has been formed for working it, composed of leading and influential citizens of Oregon. The following is copied from one of the company's official letter heads:

ALASKA GOLD AND SILVER MINING COMPANY.

Incorporated January 30, 1877.

Location of mines, Baranoff Island, Alaska Territory.

Capital stock, 300,000 shares; par value, $1 each.

Directors.

C. A. ALISKY, of Alisky & Hegle, Wholesale Confectioners.
S. FARRELL, of Everding & Farrell, Commission Merchants.
E. H. STOLTE, of Buchtel & Stolte, Photographers.
S. O. HERSEY, Proprietor Aurora Restaurant.
Dr. S. J. BARBER, of Barber & Nicklin, Dentists.
Bvt. Col. H. CLAY WOOD, A. A. Gen'l, U. S. A.
C. H. WOODARD, of C. H. Woodard & Co., Druggists.
L. C. HENRICHSEN, of L. C. Henrichsen & Co., Jewelers.
GEORGE WOODWARD, of Woodward & Connell, Brokers.

C. H. WOODARD, *Pr*

W. T. BODLEY, *Sec't'y.*

PORTLAND, OREGON, ———, 187-.

Last spring Mr. C. L. Wolter, a practical mining engineer, was s Sitka by this company to examine their ledge and make a report. following is the statement made by him:

This mine (commonly called the Stewart tunnel) is situated about 14 mile east of Sitka, 800 feet above the level of the sea, and about a mile and a qua deep water, where the largest ship may come in safety. The ledge is well runs east and west, and is about 15 feet wide, with a fissure vein from 3½ to width. The rock is bluish gold-bearing quartz, and lies in a slate formation, a good foot and hanging wall. About 250 tons of rock have already been t averaging $12 to $15 a ton, some of which, however, runs as high as $30 to The rock will have to be crushed by the wet process, concentrated, and s roasted and passed through chloridation in order to separate the gold fro

mine known as "The Francis Lode," discovered some years ago by the Francis family. Hon. Allen Francis, the present American consul at Victoria, British Columbia, is a part owner. This mine is only waiting for capital for its development. I have seen some good specimens of auriferous-bearing quartz from this mine.

Recently a quartz ledge has been found by a man named Dickinson, near Tongas Narrows, well defined and rock abundant. An assay has been made with the following extraordinary result per ton:

Gold	$300.00
Silver	$37.37
Copper, per cent	60

The mines on Bald Mountain, Baranoff Island, about 4 miles above the Stewart tunnel, are attracting attention. The specimens from that locality are very rich in sulphurets, some carrying free gold. When the snow melts next spring this belt will be thoroughly prospected, and several men have announced their intention to this effect.

These few examples are given of results already determined as far as the finding of ledges is concerned. That the whole country is full of mineral is the united testimony of all experienced miners who have visited it, and the day is not far distant when will spring up in southeastern Alaska one of the greatest and wildest mining excitements of the next decade.

Prof. William P. Blake, in his notes upon the geography and geology of Russian America, written in 1868, advances the following proposition:

> The stratified formations of the archipelagoes along the coast are not favorable to the existence of gold-bearing veins, for the metamorphosing agencies which usually accompany the formation of mineral veins do not appear to have acted upon the rocks with sufficient strength.

This theory of Professor Blake remains to be practically tested. It is indisputable that rich mines of gold and silver have been found upon Baranoff Island, but whether the ledges will last as the shafts are sunk and levels opened is a question which can only be determined by working the mines. It is impossible to tell by merely scientific conjecture whether mineral will be found at any very great depth, and whether the ledges may not soon run out.

It must, however, be confessed there are others, and among them practical miners, who share the doubts and opinions of Professor Blake, and I would not like to be included among those who wholly disagree with him. Still, from the developments already indicated on the coast islands, the ore is so rich, easy of access, and readily milled, that a thorough test should be made of the value of the discoveries before leaving them to search elsewhere.

The principal point of disagreement between Professor Blake and those who contend that true veins will be found on the islands seems to be the difference of opinion as to their formation. Professor Blake contends these islands are not formed of volcanic rocks, but consist of stratified formations, chiefly sandstone and shale. The popular opinion is, and is so stated by some writers, they are of volcanic origin, and to a layman this would seem a most plausible theory, for in cruising among these 1,200 islands in the Alexander Archipelago the belching forth of latent fire is the first thing which suggests itself to the non-professionals, and how they are formed and how they got there is well exemplified in the familiar quotation:

> Pretty in amber to observe the forms
> Of dirt and grass, grubs and worms;
> Not that we think them either rich or rare,
> But wonder how the devil they got there.

considerable lithological change may be found, great distances may be traversed from southeast to northwest and little difference noted. In British Columbia, so far as geological explorations have yet gone, they have tended to show a general resemblance of the rocks to those of the typical sections of California and the Western States; and though metalliferous veins, individually, are very inconstant, as compared with rock formations, belts characterized by metalliferous deposits, and dependent on the continuance of some set of beds, are apt to be very much more constant.

At Karta Bay, on Prince of Wales Island, about 200 miles from Sitka, there exists a very valuable mine of bronze copper, formerly owned by Charles Baronvich, who has lately disposed of it to a San Francisco company of large wealth. I learn it is the intention of the company to work it without delay. I have seen sacks of this ore and can safely pronounce it of uncommon richness. The company alluded to, before purchasing, had the merits of the mine thoroughly tested by practical experts, and are satisfied they have acquired a valuable property. This company is composed of gentlemen of rank, wealth, and experience, and I regard it as a most fortunate thing for Alaska that they have invested their means in the Territory, for their position and influence are such that they will speedily make themselves heard in the halls of Congress on two propositions:

(1) That they shall be permitted to acquire an indefeasible title to the property they have purchased.

(2) That they shall be protected in the quiet enjoyment of such property.

The Mackenzie or Copper River flows through a rich copper region, and when the geological resources of that particular portion of Alaska are defined, it is confidently predicted it will rival Lake Superior in the production of that metal.

Some of the early writers mention the existence of this metal in this locality, and Mr. Louthan says:

The early Russians told fabulous stories of the existence of both gold and copper on this river, which is proved by the fact that the Indians are at times seen to use these metals in their ornaments.

Professor Blake remarks:

It has long been known that large masses of native copper are found along Copper River, which flows into the Pacific between Mount St. Elias and the peninsula of Kenai. Some of these masses, shown to me by his excellency Governor Foumhelm, at Sitka, very closely resembled the specimens formerly picked up on the shores of Lake Superior. From all the information which I received, I am inclined to believe that a copper-bearing region, similar to that of Lake Superior, exists in the interior. It is interesting that large masses of native copper have recently been found in northern Siberia. A large mass was exhibited at Paris, in the Exhibition, from the Kirghese steppes. It contained native silver, in isolated masses, identical in its appearance and its association with the singular masses of Lake Superior native copper, associated with silver; this appears to be a characteristic mineral of the northern regions of both continents.

I have recently been reliably informed that large deposits of petroleum have been found on Copper River. As this river is in the interior, its treasures will be of no benefit to civilized man until the miner and capitalist can go thither, fully protected by the nation in the legitimate pursuit of mining industry.

At Katmay, situate on the peninsula of Alaska, opposite Kodiak Island, petroleum has also been found; and in the year 1869 specimens were sent to the Smithsonian Institution by Dr. Thomas T. Minor, now marine-hospital surgeon of the collection district of Puget Sound.

COAL.

Alaska is full of coal; it can be found cropping out all along the coast islands and in the interior. Professor Blake is authority for the follow-

to take me to the spot. For certain reasons I preferred not to visit the place, but to reserve this for some future occasion. I know where it is, and for the present do not feel disposed to make any further disclosures.

I am also credibly informed that immensely valuable coal deposits exist on Kou Island, in the Alexander Archipelago, the precise location of which is known to the Alaska Shipbuilding and Lumber Company, who have petitioned Congress for permission to buy the island at the price of $1.25 per acre, ostensibly for shipbuilding purposes. This will be alluded to again when the timber production is noticed.

Frequent reports have hitherto been made to the Department upon the coal discoveries which have been made. The day is not far distant when Alaska will furnish all the coal required for the steamships and steamboats engaged in her trade, for, as Mayor Dodge, of Sitka, very truly remarks:

> Of minerals, I can only say that from the earliest history of the Territory to the present day the existence of gold, silver, copper, iron, marble, and coal has been constantly attested. We have the undeniable authority of eminent scientific officials and the statements of strangers temporarily visiting this coast.
>
> Back of Sitka, at Kake and Kootznov, are coal mines, no one knows how extensive. At Tarkow and Chilkaht the coal crops out in abundance, and to the westward of Sitka, it is the testimony of all the traders that coal can be found almost at any place one chooses to land.

Large iron fields have also been found. Mayor Dodge is responsible for the following statement made in 1869:

> Professor Davidson, of the Coast Survey, while at Chilkaht making observations of the eclipse on the 7th of last August, found that the needle of his compass pointed constantly wrong, and soon learned the fact that he was near a mountain of iron some 2,000 feet high, which attracted the magnet wherever used, from its base to its summit, and a further examination showed that this mountain was only one of a range similar in character and extending fully 30 miles; and, as if nature had anticipated its uses to man, a coal mine was found near by.

Galena, marble, graphite, sulphur, platina, and cinnabar have all been discovered, and yet we are told that Alaska is not and never will become a mining country.

There is no portion of the Pacific Coast which has so bright mining prospects ahead, and whose brilliant future would be clearly established if the needed protection for life and the outlay of capital was afforded by the Government.

There is no speculation or investment that can be mentioned which holds out such glittering and inviting prospects as mining, and it is almost invariably the rule in San Francisco, which is the great commercial mart of the Pacific Slope and its mining center (some day it will be the financial center of the globe), that while frequently it is absolutely impossible to obtain money to promote mechanical enterprise or agricultural industry, the vaults of the money kings will readily unlock at the prospect of investing in quartz ledges, gravel claims, or any kind of ground which promises well in gold or silver. History will only repeat itself and the experience of the Pacific Coast will be redoubled in Alaska. California, settled for nearly a century by the Spaniards and Jesuit Fathers, did not unfold her untold treasures of hidden gold until the year 1848, the result of an accidental discovery made by an American. In 1859 was suddenly brought to light the fabulous wealth of Washoe, which has astonished the whole civilized world by the production of its far-famed Comstock lode, which has, in round numbers, yielded $300,000,000.

The inhabitants of the Pacific Coast, and especially Californians, devote a large portion of their means and time to mining enterprises,

of mineral veins, and with plenty of fuel the metallurgist and miner can reduce the most rebellious ores, and compel them by scientific process to yield up their concealed wealth.

And while the soi disant Professor (?) Elliott is throwing slurs upon the climate of southeastern Alaska, and endeavoring to make the world believe that no industry can be carried on there in the winter season, the real Professor Blake, of national reputation and world-wide experience, says:

The severe climate, which prevents all placer or deposit mining, where water is used, during the winter months, would not materially hinder vein-mining operations carried on below the surface. In this point of view a region of gold veins along these mountains has great prospective importance.

Give our prospectors but a fair chance and they will readily demonstrate the falsity of what has been said and done to depreciate the value of the mineral wealth of Alaska. All they ask is the fostering care of the Government.

I feel assuredly sanguine as to the future wealth of Alaska in minerals. It is only a question of time. What we need is Congressional legislation for the protection of the miner. We will combine our energies and the capital of the coast, and show the world the wealth of our mines beyond question.

There's a good time coming, boys,
  There's a good time coming!
We all will live to see the day,
And earth shall glisten in the ray
  Of the good time coming!
Talk is cheap, but words are wind;
  Work we know is stronger;
We'll prove our country by its aid—
  Just wait a little longer.

TIMBER.

In treating this subject reference must be had to the statements made by contemporaneous writers; but little originality can be given, and I must content myself with copious extracts.

First, let us see what Elliott has to say. On page 815 of Harper he advances this proposition:

If we ever utilize the spruce and fir timber on the Sitka Coast, we must encourage and foster the effort in the line of shipbuilding, for this timber is too gummy and resinous for the ordinary use of housebuilding and furniture making.

Mr. Elliott is quite right about shipbuilding, but it is to be hoped he does not indorse the scheme of a party of San Francisco capitalists, who are endeavoring to gobble up the island of Kou.

On December 20, 1876, Hon. William A. Piper, then Member of Congress from San Francisco, introduced, by unanimous consent, a bill "granting to the Alaska Shipbuilding and Lumber Company the right to occupy and purchase certain lands in the Territory of Alaska, upon paying the Government price therefor, and for other purposes," which, being referred to the Committee on Public Lands, on February 1, 1877, was duly reported by Mr. Walling of that committee in the words and figures following, to wit:

IN THE HOUSE OF REPRESENTATIVES, February 1, 1877.

Read twice, recommitted to the Committee on the Public Lands, and ordered to be printed.

Mr. Walling, from the Committee on the Public Lands, by unanimous consent reported the following bill as a substitute for the bill H. R. 4260:

A BILL authorizing the sale of certain lands in the Territory of Alaska, upon paying the Government price therefor, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of encouraging shipbuilding and developing the Territory of Alaska, the Alaska Shipbuilding and Lumber Company, a corporation formed and existing under the laws of the State of California, and its successors and assigns, are hereby authorized to enter upon and take possession of the island of Kou, situated in the waters of the Territory of Alaska, and lying between fifty-six degrees and twenty minutes and fifty-seven degrees of north latitude, and one hundred and thirty-three degrees and thirty minutes and one hundred and thirty-four degrees and twenty minutes west longitude, and to purchase the same, except such parcels as the President of the United States may previously reserve for public uses, upon payment to the United States of one dollar and twenty-five cents per acre for each acre purchased; such purchase to be made from time to time and in such quantities as may be required; and the said Alaska Shipbuilding and Lumber Company, its successors and assigns, may purchase timber lands upon the shores of the adjacent waters of Christian and Prince Frederick sounds, and Chatham, Duke of Clarence, and Kekon straits, upon giving notice of its intention so to do, describing generally the lands, and giving security for the payment of the expense of making the necessary surveys, and, upon the completion and return of such surveys, paying for such land one dollar and twenty-five cents per acre. Surveys made under this act may conform to the shores of the sea and to the configuration of the country; and the expenses thereof shall be advanced by the said purchasers and allowed in payment for lands purchased under the provisions of this act. The right of purchase conferred by this act is upon the express condition that the said Alaska Shipbuilding and Lumber Company shall, within two years from the passage of this act, and the establishment, if necessary, of such measures for protection against hostile Indians as will secure said purchasers in the enjoyment of the purchases hereby authorized, construct on said lands at least one ship, of not less than twelve hundred tons burden, and thereafter maintain a shipyard and vigorously prosecute shipbuilding. The quantity of land to which said purchasers may acquire title under this act is limited to one hundred thousand acres, to be wholly selected and paid for within ten years from the passage of this act: *Provided,* That nothing herein contained shall be held to authorize said company to enter upon, or take possession of, any portion of said lands, or remove any timber or other valuable materials from the lands hereby authorized to be purchased, until such land shall have been paid for at the price fixed by this act.

SEC. 2. That the lands mentioned in this act shall, for the purpose of survey and purchase, under the provisions of this act, be deemed to be included within the district of land subject to sale at Olympia, in the Territory of Washington; and the surveyor-general of that Territory is authorized to make the surveys, and the register and the receiver of the land office at that place to receive the notices, proofs, and payments contemplated by this act.

SEC. 3. That the right is reserved to Congress to alter, amend, or repeal this act.

The following report accompanied the bill. So much is copied as is pertinent to the issue. A rehash of Special Agent Elliott's report in regard to the climate, agricultural character, etc., of Alaska, as recently rewritten and reproduced in Harper's Magazine, appears in the body of the report, and would seem to indicate he had been interviewed upon the subject. This has been discarded as irrelevant.

Mr. Walling, from the Committee on the Public Lands, submitted the following report to accompany bill H. R. 4560.

The Committee on the Public Lands, to whom was referred the bill H. R. 4260, reported as a substitute H. R. 4560, and accompanied the same with the following report:

A memorial, signed by several merchants and business men of San Francisco, was presented to this House during the first session of the present Congress, asking that they be permitted to purchase, at the Government price per acre, a tract of land in the Territory of Alaska, on the islands lying between Sitka and the mainland, for the purpose of enabling them to establish shipyards and lumber manufacture. This memorial was subsequently followed by a bill, introduced at the request of the same parties, who had incorporated themselves under the laws of the State of California as the Alaska Shipbuilding and Lumber Company. The proposed bill conferred the authority on that corporation to make the purchase mentioned in the memorial.

The committee being satisfied, from the character of the persons whose names were attached to the memorial, and from representations made in relation to the project, that the enterprise was backed by good faith and by the ability and determination (if permitted) to carry it out, have, after such investigation as it has been possible to make, embodied their recommendations in H. R. 4560 as a substitute for H. R. 4260.

* * * * * * *

It would seem very apparent that this region must remain for an indefinite period in the future, as it has remained hitherto, a worthless waste, unless some inducements are held out to attract associated capital to develop, by large experimental outlays of energy and money, the possibility of turning this inhospitable and uninviting domain to some national use. If the enterprise proposed by the memorialists should prove remunerative, there will remain to the Government millions of acres of similar lands, which would find a market and furnish employment to thousands of mechanics and laborers.

It is unnecessary to refer in this report to the beneficial results that would follow the establishment of shipbuilding, for it is conceived that, independent of this, it would be to the advantage of the Government to know that climatic and physical obstacles can be so far overcome as that any industry can be successfully and profitably prosecuted in that latest and most questionable of our national real-estate speculations. It is proposed to do this, not only without expense to the Government, but by a sale at the Government price of land now worthless, and which must always remain so until enterprises like this are established.

The island of Kou, upon which the memorialists propose to establish their shipyard, and upon which and on the shores of the adjacent waters they desire to purchase timber lands, is one of the islands composing the Alexander Archipelago, separated from Baranof Island, on which Sitka is situated, by Chatham Strait; to the east lie successively Kekon Strait, Kaprianhoff Island, Wrangell Strait, Mitgoff Island, Souchoi Channel, and then the mainland. So far as known, it is valueless, except for a belt of timber that fringes its shores and extends up its narrow valleys.

The bill reported herewith authorizes the Alaska Shipbuilding and Lumber Company to purchase 100,000 acres of timber lands on this island and neighboring shores, upon paying the Government price therefor, and no timber or other material is to be removed from any lands until paid for. The entire number of acres is to be selected and paid for within ten years. Surveys are to be made at the expense of the company, to be credited in payment on the lands purchased, and the company undertakes, within two years, to establish a shipyard, and complete within that time at least one ship of 1,200 tons burden, and thereafter to prosecute shipbuilding vigorously. The guarantee that this will be done lies in the fact that it will be necessary to make a large outlay to build a single ship, so large that, if possible, they must continue that industry or lose the capital invested. If the construction of ships can be profitably continued, this preliminary investment will be sufficient to insure a further prosecution of the enterprise; if unprofitable, the Government ought not to insist upon its further continuance. The survey and the entry and payment of the lands will be made through the land office at Olympia, in Washington Territory. The bill reserves the right in Congress to alter, amend, or repeal the act at any time.

The duty of the United States to the aboriginal inhabitants of that locality has been considered in several reports made by Government agents sent to investigate the condition and resources of Alaska and its inhabitants. They concur in the opinion that (excepting at the fur islands and stations of the Alaska Commercial Company) the withdrawal of the supervision exercised under the former Government has been most deleterious, and that no hope of a better state of things can be justly entertained while the Territory is suffered to remain in its present abandoned and lawless condition. Whatever enterprises shall attract an industrious population, and give remunerative employment to such of those people as will labor, will be a step toward their subjection to better influences, and will be evidence to them that the United States is at length willing, not only to encourage industry, sobriety, and morality, but to repress the worse than natural vices into which they are relapsing.

For these and other reasons that will suggest themselves without further extending this report, the committee recommend the legislation proposed by the House bill 4560.

The committee have been led into error in making this report, which is highly favorable to the company seeking the purchase. They are led to the conclusion that the land is "a worthless waste" at present, and "must always remain so until enterprises like this are established."

Has Congress any idea of the extent of the Island of Kuiu? It is a

erable hardness, extreme durability, and pleasant fragrance. For boatbuilding it is unsurpassed, in addition to its lightness, toughness, ease of workmanship, and great durability.

After ascending some distance the mountain sides of the island of Sitka, the wood, which appears in increased denseness before us, consists particularly of a noble thuja (*T. excelsa, C. nutkænsis*). This is the timber most valued here. It occurs frequently farther down, but the more predominant spruce trees conceal it from view; but here it constitutes almost the entire timber. From its agreeable perfume it is known to the Russians as dushnik, or scented wood. This is the wood formerly exported to China, and returned to us as "camphor wood," etc., famous for excluding moths. In repairing old Fort Simpson a stick of this wood, among the pine timbers used for underpinning, was found to be the only sound log after twenty-one years' trial. A wreck on the beach at Sitka, originally constructed of this timber, was found thirty-two years after as sound as the day it was built; even the iron bolts were not corroded.

The Island of Kuiu is said to abound in this valuable wood; hence is submitted the propriety of granting to one company the sole authority to monopolize all the timber on the island, mines, and everything else. It is a most astounding proposition, and the parties advocating it must be imbued with the same spirit which actuated General McDowell in his interview with that Chicago reporter, when he thought we had better give the country away to anybody who would take it.

Captain Dall further describes the timber of Alaska as follows:

The first need of traveler, hunter, or settler, in any country, is timber. With this almost all parts of the Yukon territory are well supplied. Even the treeless coasts of the Arctic Ocean can hardly be said to be an exception, as they are bountifully supplied with driftwood, brought down by the Yukon, Kuskokwim, and other rivers, and distributed by the waves and ocean currents.

The largest and most valuable tree found in this Territory is the white spruce (*Abies alba*). This beautiful conifer is found over the whole country, but it is largest and most vigorous in the vicinity of running water. It attains not unfrequently the height of 60 to 100 feet, with a diameter of over 3 feet near the butt; but the more common size is about 30 or 40 feet high and about 18 inches at the butt. The wood of this tree is straight-grained, easily cut, white, and compact, and while very light it is also very tough, much more so than the wood of the Oregon pine (*Abies douglasii*). For spars it has no superior, but it is rather too slender for large masts. The bark is used for roofing by the Hudson Bay Company at Fort Yukon, and the roots, properly prepared, for sewing their birch canoes and dishes by the Indians. I have seen log houses twenty years old in which many of the logs were quite sound. The unsound logs were said to be those which had been used without being seasoned. These trees decrease in size and grow more sparingly toward Fort Yukon, but are still large enough for most purposes. The unexplored waters of the Tananah River bring down the largest logs in the spring freshets. The number which are annually discharged from the mouth of the Yukon is truly incalculable. It supplies the shores of Bering Sea, the islands, and the Arctic coasts; logs of all sizes lie in winrows, where they are thrown upon the shore by the October southwesters.

The wood is put to manifold uses. Houses, Indian lodges, etc., are all constructed of spruce. Soft, fine-grained, and easily cut, the Indians of the Lower Yukon spend their leisure, during the short winter days, in carving dishes, bowls, and other utensils, and ornamenting them with red oxide of iron, in patterns, some of which, though far from classical, are very neat.

Seeds, frames for skin boats, fishing rods, etc., are made by the Eskimo from spruce, and all their houses and casinos, or dance houses, are built of it. One of these, on Norton Sound, about 30 by 40 feet square, had on each side shelves or seats formed of one plank, 4 inches thick and 38 inches wide at the smaller end. These enormous planks took six years to make, and were cut out of single logs with small stone adzes.

The next most important tree is the birch (*Betula glandulosa*). This tree rarely grows over 18 inches in diameter and 40 feet high. On one occasion, however, I saw a water-worn log about 15 feet long, quite decorticated, lying on the river bank near Nuklukahyet, on the upper Yukon, which was 24 inches in diameter at one end and 28 at the other. This is the only hard-wood tree in the Yukon territory, and is put to a multiplicity of uses. Everything needing a hard and tough wood is constructed of birch. Sleds, snow shoes, standards for the fish traps, and frames of canoes, which are afterwards covered with its bark, sewed with spruce or tamarack (*Larix*) roots, and the seams calked with spruce gum. The black birch is also found there, but does not grow so large. The soft new wood of the birch, as well as of the poplar, is cut very fine and mingled with his tobacco by the economical Indian. The squaws

at certain periods wear birchen hoops around their necks, and neck rings and wristlets of the same wood, with fantastic devices scratched upon them, are worn as a token of mourning for dead friends by the Tananah Indians.

Several species of poplar (*Populus balsamifera* and *Populus tremuloides*) abound, the former along the water side and the latter on drier uplands. The first-mentioned species grows to a very large size. The trees are frequently 2 or 3 feet in diameter and from 40 to 60 feet high. The timber is of little value, but the Indians make small boards, for different purposes, out of the soft wood, and use the feathery downs from the catkins for making tinder, by rubbing it up with powdered charcoal.

Willows are the most abundant of trees. They are of all sizes, from the slender variety on the lower Yukon, which grows 70 or 80 feet high while only 6 inches in diameter at the butt, and with a mere wisp of straggling branches at the extreme tip, to the dwarf willow, crawling under the moss, with a stem no bigger than a lead pencil, and throwing up shoots a few inches high. Willows are almost invariably rotten at the heart, and are only good for fuel. The Kutchin Indians make bows of the wood to shoot ducks with, as its elasticity is not injured by being wet. The inner bark is used for making twine for nets and seines by the Indian women, and the Esquimaux of Bering Straits use willow bark to color and tan their dressed deerskins. It produces a beautiful red-brown, somewhat like Russian leather. The inner bark or cambium of the alder (*Alnus rubra*) is used for the same purpose.

The other species rising to the rank of trees in this district are the larch (*Larix dahurica?*), which is found on rolling prairies of small size; a small birch (*Betula nana*) and several alders (*Alnus viridis* and *incana*); a species of juniper (*Juniperus*) and numberless willows (*Salices*). A species of pine (*Pinus cembra*) has been reported from Kotzebue Sound, I can not but think erroneously, as I saw no true pines in the Territory during a two years' exploration; the most northern point touched by the *Pinus contorta*, at the junction of the Lewis and the Pelly rivers, at Fort Selkirk, in latitude 63° north, longitude 137° west (approximate). The Hudson Bay men at Fort Yukon call the white spruce "pine."

I can not see anything to justify Elliott's statement that "this timber is too gummy and resinous for the ordinary use of house building and furniture making." In fact, the testimony is quite the other way. I know personally the yellow cedar is not; but, as far as that tree is regarded, Mr. Elliott does not even seem to know it is indigenous to Alaska.

FISH AND FISHERIES.

Mr. Elliott delivers himself of the following diatribe:

The great speech of Sumner in favor of the treaty, and which, in the universal ignorance of the subject prevailing in the American mind at the time it was delivered, was hailed as a masterly and truthful presentation of the case is, in fact, as rich a burlesque upon the country as was Proctor Knott's "Duluth." Sumner, however, meant well, but he was easily deceived by the cunning advocates of the purchase. No; no mention was made of these islands and their fur-seal millions, but infinite stress was laid upon the commerce which would spring up in ice and fish, when, in fact, not a single ice ship has sailed from Alaska for the last seven years, and the fishing fleet and its whole year's work would be considered unworthy of notice in a New England seaport town.

This uncalled for fling at the noble Sumner is as ungenerous as it is untruthful and unjust, and can not but recoil upon the head of its unworthy author. If naught was known about the fur-seal fisheries at that time, it is no argument against the acquisition; for the Territory is well worth the purchase money and more too, without "seal life," in which Mr. Elliott so luxuriantly revels. He is entitled to all he knows about the seals, their skins, oil, fat, and blubber, but aside from this he literally knows nothing, and can see no merit beyond the apex of the nose of a fur seal.

Notwithstanding the fabulous statements made by Mr. Sumner in his magnificent speech upon the cession of Alaska, the truth of everything he said in relation to the fish in those waters has been proven, and the day will soon come in which he will be thanked by the nation at large for being instrumental in including within the American domain such a valuable gain to our national industry.

Mayor Dodge, of Sitka, pays Mr. Seward and himself the following tribute:

Charles Sumner, in his speech on "The cession of Russian America," not only made a valuable contribution to literature, but he gave to the world, and to the American people especially, information concerning the illimitable resources, climatology, and population of this country which we, from our observation and information from other sources, fully justify and maintain. It is literally true; none of it is overdrawn; and although a portion of the people now ridicule the treaty negotiated by Secretary Seward whereby we have gained possession of this far distant land, the years are not many when the country will bless him for this very act, and pronounce him the ablest and most far-sighted statesman of the age in thus pacifically attaining so important a step toward the final and exclusive dominion of the entire North American Continent.

I quote from Captain White; every word of what he says can be relied upon as the truth:

What of the cod fisheries? Some gentlemen in the business say that the Okhotsk Sea has the better codfish banks; but as the food of this fish comes up on the southern arm of the vast Japan current that sweeps past under the Aleutians, why are not good cod-fishing grounds under Alaska? Answer: There are. I sounded the shores 700 miles by log northwest from Sitka, and found the entire length a codfish bank (with plenty of halibut also). The smaller codfish are in the shallower waters, nearer the shore, of 20 or 30 fathoms; but the best fisheries are farther out in 70 or 80 fathoms. For example, one day when sounding south of Kadiak, wishing to lay in a store of codfish, I ordered the sails set back and the lines prepared.

What bait? I had a barrel of Puget Sound clams salted for me with this purpose. I took my leadline, as large as my thumb, attached five hooks above the lead, with a clam on each, and fastened to the davit; soon the bites—one, two, three, often five—were felt. I threw the line over the pulley and put four men to pull, and up would come two, three, and sometimes five cod, weighing 30 to 40 pounds apiece. We had out about 20 lines, and caught 250 fish in two hours. I met some fishermen and asked why they did not fish farther out, instead of catching the smaller ones of 5 to 15 pounds each near the shore. They replied that the deep-water fishing was "too hard work."

It is true, as Captain White states, about the quality of the fish being graded according to the depth of water in which they are taken. And this is the reason why the fishing vessels dispatched from San Francisco to these waters have not met wholly with gratifying success. The fishermen have been too lazy and good for nothing to fish in deep water.

The time is soon coming when some live Yankee, who has the go in him, will emigrate from the frozen banks of Newfoundland and show what can be done in our own territory. The present condition of our fishing interests on the Newfoundland banks is far from satisfactory, and this alone must attract attention to these new-found resources. A writer in the Sitka Times says:

I can not see why we should obligate ourselves to a foreign nation to secure that which we already have at home. As fine cod-fishing banks as exist in the known world lie all along the coast of Alaska, from the peninsula of Unalaska through Norton and Kotzebue sounds into Bering Strait. One great difficulty which always existed on the Newfoundland banks is the great depth of water, which ranges from 70 to 90 fathoms. The banks along our coast only average from 30 to 50 fathoms. The fish, too, are of equally as fine a quality, and of good size.

Hon. William S. Dodge thus gives vent to his knowledge upon the subject:

And speaking of the codfisheries, one fact is important to be remembered. The banks extending all along the coast from Kodiak to Bering Straits and to the frozen ocean are shallow as compared with those of Newfoundland. the water on the Alaska banks averaging only from 20 to 50 fathoms, while those of the former average from 60 to 120 fathoms. And here is another fact, just reported to me, which I can not forbear mentioning: At Kodiak, Henry Richard and Thomas Bache, fishermen, caught alone, with hook and line, within the last six months, 22,000 cod. This statement is undeniable, and it speaks a volume. And now I dismiss this branch of the subject,

territory, and will probably be found to be as rich in mineral wealth; while the timber, though of an inferior growth, owing to the higher latitude, will yet prove by no means worthless.

The fisheries may become of great value. There are extensive cod banks off the Aleutian Isles, and on many other parts of the coast. Salmon is the commonest of common fish in all the rivers of the North Pacific, and is rated accordingly as food only fit for those who can not get better. In Alaska, as in British Columbia, the fish can be obtained in vast quantities simply at the expense of native labor. To this add the value of salt (or vinegar), barrels, and freight, and one sees the slight total cost which would be incurred in exporting to benighted Europe that which would there be considered a luxury.

In Petropaulouski a merchant told me that he had made in this way $6,000 in one season, at no more trouble to himself than that incurred in a little superintendence of the natives employed. The enterprising American is the last man to neglect this source of profit.

Mr. Whymper also states as follows:

The Yukon salmon is by no means to be despised. One large variety is so rich that there is no necessity, when frying it, to put fat in the pan. They are taken all down the river in weirs set in shallow places, in hand nets of circular form, and by spearing. We saw the very pretty sight of a whole fleet of birch barks, proceeding together as regularly as a company of soldiers. At a given signal the owner of each dipped his round hand net into the water, and if, on raising it, a big salmon came up struggling to get away, there was a general shout of derision. I saw so much harmless fun and amusement among these Indians, and they evidently find so much enjoyment in hunting and fishing, that I could only wish they might never see much of the white man, and never learn the baneful habits and customs he is sure to introduce.

There are at least two, and I think three, varieties of Yukon salmon. The larger kind sometimes measures five feet. I have seen boats whose sides were made of the tough skin; they are, however, not common and not confined to the lower Yukon and coast.

Mr. Elliott (Harper, p. 815) thus gives his crude ideas about the fisheries of Alaska:

This is all that is doing in a Territory one-sixth the size of the whole United States, from the Atlantic to the Pacific. But it may be said that the salmon which run up its rivers every spring and summer will yet be utilized as a source of productive industry. The number of spawning fish that ascend the Yukon every June and July is something fabulous, but the practical fisherman says that the "run" is of too short a duration to warrant the employment of capital in canning them; but yet a means of rapid treatment may be devised by which these splendid salmon shall be secured, with profit to the captors and credit to the country.

The subject of canning salmon has not been agitated long on the Pacific Coast, but, short as is the life of this new industry out there, it has grown already into a colossal trade, and the demand seems to always exceed the supply. It would appear reasonable to anticipate, therefore, the adoption by our fishermen of some machinery by which they can visit the Yukon when the salmon begin to run, and while they ascend the river catch a million pounds a day; for the raw material is there, of the largest size, the finest flavor, and in the greatest number known to any stream in the world.

I am glad to see that Mr. Elliott admits there are at least salmon in Alaska to catch, although he condemns with faint praise and doubts whether they can be utilized. Let us see.

The salmon fishery and cannery at Klawock, Prince of Wales Island, was started some ten years since by George Hamilton, who combined with it a trading post. Owing to the lack of sufficient capital, he has disposed of it to the wealthy firm of Sisson, Wallace & Co., of San Francisco, who have incorporated under the laws of California, taking the name of the North Pacific and Trading Company.

This company began operations late in the season, after the run of fish was more than half over, and consequently have not had the opportunity to put up a very large number of fish, but they have fully demonstrated the practicability and success of the undertaking.

They have erected a sawmill, and can saw lumber, including the cost

of the logs, for $5 per thousand. They have entirely renovated the establishment, put in new machinery of all kinds, and every appliance for the curing, salting, boiling, and canning of the fish. When I was there, on the 12th of last May, they had 350,000 tin cans made. This labor is all done by Chinamen, who readily become experts in their manufacture. Over a hundred tons of freight were landed from the *California*. When in full operation, the cannery will give employment, including fishermen, to about 150 hands.

While I was at Klawack they were testing the boiler, new machinery, and other apparatus, and were trying the experiment of canning clams and halibut, both of which are so plenteous in that neighborhood as to be a perfect drug. I have since seen the result of this, and can pronounce the clams the very best so treated on the whole Pacific Coast, and the halibut is of superior quality, preserving its flavor better than any yet produced from any other locality. The supply of these two articles of commerce alone, from this particular place, is only to be regulated by the demand.

The halibut and clams can be multiplied ad infinitum. I learn the proprietors are fully satisfied with the results of this season, and will next year resume operations on a much larger scale. They have their buildings and everything now necessary for a successful conduct of the business erected, and will be able to avail themselves of any early catch that may offer. There is no end to the supply of salmon; here, as well as at all other places which have been tested, they are to be found in countless numbers, and of the most delicious and superior quality. I can attest this myself, having eaten them with the greatest relish. My own opinion is, the farther north you go so much better are the salmon, but this is stoutly contested by the partisans and fishermen of the Columbia River.

Cutting & Co., of San Francisco, established this year at Old Sitka, 5 miles from the present town, under the superintendence of Mr. Hunter, of the Eagle Cliff Fishery, Columbia River, a large cannery. It was late in the season when they commenced. They had to erect the building, put up all the machinery, make the cans and boxes, and, in fact, commence from the ground floor up. Mr. Hunter persevered and succeeded in not only getting his enterprise well under way and ready for next season, but had it done in time for a portion of this season's run, and has demonstrated it is no longer an experiment, but a settled fact, that success will follow their efforts. So much are Cutting & Co. pleased with the prospect, that they will probably erect two additional canneries early the coming spring.

The mail steamship *California* has brought from the two canneries to Astoria and Portland over 7,000 cases of fish, or 28,000 1-pound tins. This of itself speaks volumes for the future. The Baronovich fishery at Karta Bay is for sale, owing to the continued ill-health of the proprietor. It has never been utilized as a cannery. Parties are now negotiating for it for that purpose. The site is good and the bay is swarming full of salmon in season. A writer in the Sitka Times says:

> Baronovich at Cassair last year, with the aid of only four men, put up, in splendid order, 700 barrels of salmon, and had to cease the catch ere the season was half over, he having no more barrels to fill.

The Alaska Packing Company is a corporation formed under the laws of Oregon, with a capital of $25,000. Its president is a Russian Finn. They contemplate going next spring to the Kuka River, at Cooks Inlet, near the old Russian fort of St. Nicholas, and better known since it was garrisoned by American troops as Fort Kenai. These Finns are a

hardy race; there are several of them in the company, and they will prove a valuable acquisition to the population of Alaska.

I know of far better points for the location of canneries than any selected yet, where trading posts can be opened to great advantage and a fine business started, but do not care to make them public at present.

One steamer will not be enough next season to market the fish, and it is stated upon positive authority that early in the spring another company will put on the Alaska route a 700-ton steamship.

The fact is now established that canning fish in Alaska is a success, and as an economical venture so far ahead of the Columbia River that the latter can not compete with the northern fisheries. The fishermen on the latter river, owing to the scarcity of fish, have been gradually increasing their price per catch, until last year was paid the very large sum of 50 cents for every fish caught and delivered at the canneries. Just think of that—50 cents! And this sum was agreed upon after a long parley with the fishermen, who at the beginning of the season clubbed together and demanded 75 cents apiece. In Alaska they can not cost over 5 cents apiece, and in some places less than that—about 1 or 2 cents.

The following statistics relating to the production of salmon on the Columbia River are taken from the Portland, Oreg., Commercial Reporter, of January 25, 1878. The figures are interesting, and the reader's attention is called to the falling off in the supply in 1877, and the reasons assigned therefor:

In another column is a tabulated statement by canneries of the exports for the season just drawing to a close. In this statement are included about 1,200 cases canned at Tillamook, Grays Harbor, and Shoalwater Bay that were sent to the Columbia River for export. The amount yet in hand on the river is 9,631 cases, and 500 cases at Tillamook to come forward for shipment. Under the high price obtained the latter part of the season of 1876 many new canneries were built on this river, while about all the old ones were enlarged and otherwise improved. Everyone looked forward to a very large canning, as there were more than double the number of fishing boats out. The run of fish started in light, and as the boats were not so successful as they were in 1876, and cannerymen apparently urgent for fish, the fishermen demanded and received higher prices. Even at the advanced prices they did not net much owing to the light catch, on an average, to the boat. This year it is uncertain at what price fish will open, but it is generally claimed that not less than 50 cents each will be paid, and lower if the run is large. Cannerymen expect to be able to pay this high price, and save it in the running expenses of the canneries, for all have added several new and important labor-saving machines, besides working their men more systematically and to a better advantage. We are unable to estimate what the canning for 1878 will be, but that of 1877, taking British Columbia, Washington, Oregon, and California, does not exceed the entire canning for 1876. Columbia River fell off, but other rivers increased their product. Many new canneries were built on the small rivers in Oregon, on the coast, on Puget Sound and British Columbia; but canning did not come up to expectations; besides the fish are not equal in flavor or delicacy of flesh to the Columbia River. This year it is expected that several more outside canneries will be built, but their capacity will be small. In California, on the Sacramento River, there will be three canneries in operation. Unless the fish in the Columbia River are protected by Congress, even though we propagate them artificially, the supply will, year by year, grow beautifully less. Prices opened at $1.25 to $1.30, advanced to $1.55 to $1.65, then took a downward turn, and at this writing quotations are hard to give. No future contracts are being made by canners. Several canneries became financially embarrassed, but have effected satisfactory arrangements by which they will again start up when the season opens, but upon a more conservative plan.

The following is a list of canneries in operation on the Columbia River, and number of cases canned during the years 1875, 1876, and 1877:

Canneries.	1875.	1876.	1877.	Canneries.	1875.	1876.	1877.
Badolett & Co	.....	25,693	20,001	Watson & Bannon	13,000	17,500	6,856
A. Booth & Co	34,000	37,000	23,160	John West	15,000	13,870	7,595
Oregon Packing Co	22,000	36,986	24,553	Sternberger & Co	.....	.....	14,029
Dodge, Sweeney & Co	12,500	16,000	10,249	G. W. Hume	.....	.....	11,277
John A. Devlin & Co	.....	21,500	19,956	Anglo-American Co	.....	.....	13,247
Fitzpatrick, Davis & Co	.....	20,375	19,540	Fishermen's Packing Co	.....	.....	14,955
Cutting & Co	20,000	24,081	16,866	Clackamas Packing Co	.....	.....	858
Hapgood & Co	18,000	21,425	11,718	Hanthorn & Co	.....	.....	14,002
Jackson, Myers & Co	.....	12,000	8,311	Leveridge & Prindle	.....	.....	10,015
R. D. Hume	20,000	48,000	.....	Pillar Rock Co	.....	.....	6,645
Hume & Co	.....			Watson Brothers	.....	.....	8,144
Wm. Hume	16,000	17,500	8,861	Bradley, Davis & Co	.....	.....	9,066
Joseph Hume	25,000	21,800	22,058	James Quinn	.....	.....	2,977
Kinney Brothers	.....	38,500	51,291	Hepburn & Co	.....	.....	3,320
J. G. Megler & Co	16,000	28,000	19,246				
F. M. Warren	20,000	28,500	16,968	Total	231,500	438,730	395,288

The multiplication of canneries must necessarily diminish the run of the fish, and hence we must look elsewhere for a supply than the Columbia River, and see if we can not find somewhere a stock which is inexhaustible.

The canning of salmon is still in an embryo state; its introduction into the markets of the world is gradual. There never need be any fear that the supply will ever exceed the demand, always, however, bearing in mind that the cost of production must not be so great as to inhibit the sale of the fish. If Alaska will produce canned fish and land them in Europe at a reduced price and cheaper than those from the Columbia River, Puget Sound, and the Fraser, she will control the market, be able to undersell all competitors, and govern the whole commercial world in this respect.

When we reflect that the whole amount of fish produced on the Columbia River during the year 1877 would not furnish a breakfast for the inhabitants of London for one week, the infancy of this new enterprise is readily appreciated, and the great resources of Alaska are prominently brought in view.

Mr. Elliott, I think, is right about his remarks on the salmon in the Yukon, but he has singularly selected the most unfavorable spot in Alaska for the prosecution of this industry. The Yukon has debouched at its mouth miles and miles of sand and débris, creating bars, so as to render its navigation dangerous and uncertain; but this will all be corrected when the Coast Survey gets to work up there, and marks out the channels.

Probably the run of salmon in the Yukon for a short time can not be compared with anything similar on earth. It is wonderful to behold. One is hardly expected to be believed if he tells the truth about it.

Mention must also be made of the millions of herring of the largest size and finest flavor which are to be found, and only awaiting Yankee enterprise for conversion into a rich and thriving trade.

A correspondent of the San Francisco Chronicle, writing from Wrangell under date of July 6, 1878, takes a broad and expansive view of the fish-canning industry and the country generally. He gracefully writes as follows:

On leaving Klawock wharf the *California* had to steam ahead into the middle of the circular basin for room to turn her bow seaward. Prince of Wales Island is the largest and perhaps the most valuable of our 1,100 islands of the Alexander Archipelago. As yet its value and resources are but partially known, only a few points on its coasts

having been visited by Americans or Europeans, to whom its interior is still a terra incognita. But this ignorance will soon yield to the explorations of prospectors in search of mineral wealth, and as fishing settlements multiply upon the coast incursions into the interior can be made with comparative ease. The southern shores of this island touch the boundary line of British Columbia. It is only 450 miles north of Washington Territory, and its winter climate, tempered by the warm current which sweeps across the Pacific, is as mild as the winter climate of San Francisco, and its summer days are far more enjoyable than those of your wind-swept city. Its timber, particularly its yellow cedar, possesses a higher market value than the timber of Oregon or California. The value of its fisheries is now becoming known to the world. Yet we are told by writers, who are paid to decry Alaska, that this and its neighboring islands, like the rest of the purchased Territory, are valueless and unfit for the habitation of civilized man. We have entered upon the second decade of our possession of Alaska, a decade which promises to close upon a much higher public estimate of the value of the purchased Territory than has yet been accorded to it. Powerful agencies have been at work to depreciate the value of Alaska and discourage enterprise and emigration in this direction. And there is no doubt a prevalent popular opinion that Secretary Seward made an unprofitable and useless investment for the United States when he purchased Alaska. That opinion, based upon indifference to and ignorance of the real value of the already known resources of the Territory, is about to be dispelled by the profitable utilization of at least a part of those resources. And before the end of this our second decade of ownership the sagacity, foresight, and wise statesmanship of Mr. Seward in making the purchase will be fully vindicated.

I can not close this topic without alluding to what Mr. Elliott has said about no ice ship having sailed from Alaska for seven years. This is a very unfair method of belittling a country. Mr. Elliott well knows that after the purchase an ice company was formed in San Francisco that supplied all California with ice, and ships went also to Mexico, Central and South America, laden with ice. This was carried on for several years, until the production of artificial ice became so cheap and so general as to completely drive the native ice out of the market. This is the sole and only reason for the cessation of ice shipments.

TITLES TO LAND AND CONVEYANCES—ESTATES DEVISED BY WILL AND LAWS FOR THE COLLECTION OF DEBTS.

There is not now in force in Alaska any law whatever respecting any of the essential provisions contained in the above title. It may seem paradoxical to state there is no law extant whereby a man can acquire title to land in a Territory belonging to the United States, yet such is the frozen truth, and to-day this singular embarrassment exists without any redress, remedy, or cure, save intervention by Congress.

I know of an instance where a man is desirous of erecting a sawmill on Prince of Wales Island, but dare not risk the outlay, for the simple reason there is no law whereby he can secure title to his mill site alone, without looking to the acquirement of timber lands for lumber, and if he cuts without, being liable some day to be arrested and fined for cutting on United States lands.

There is no title whatever to the property held by residents of towns save by possession only, except in some isolated cases, where the Russian title may be recognized; and the towns themselves will have to have their own title perfected before any subsequent grantee can deraign a perfect title in fee from them.

In order that there may be no misunderstanding about this matter, I herewith submit a letter from the Commissioner of the General Land Office:

DEPARTMENT OF THE INTERIOR, GENERAL LAND OFFICE,
October 26, 1867.

SIR: I have the honor to acknowledge the receipt of the Department letter of yesterday, inclosing a communication of the 24th, from the honorable Secretary of State, by which the Department is advised that citizens of the United States are

patent to mining property is concerned, until Congress shall provi the necessary legislation.

To my mind, with all the drawbacks the Territory has had, ve rapid advances in the march of improvement and civilization have be made, and the mineral discoveries have not only been important, b under all the circumstances marvelous.

CONVEYANCES.

As there is no law for the acquisition of real estate, so is the corolla there is no law providing for the recordation of conveyances. A m can not sell a piece of property in Alaska and give a deed for it wh will be legal notice to third parties, and for the same reason a man c not mortgage a piece of land as security for a loan which will give le notice to creditors and others.

In fine, there is no law in the country touching either of these im tant factors of business life.

As mentioned before, the deputy collectors at Sitka and Wran keep each a book of conveyances, which, if legalized, may have so day an important bearing, and even now, as a book of reference, t are valuable, but they have no legal significance or force whatever.

WILLS.

Likewise, a man dying in Alaska is unable to dispose of his prop by will, if everything he owns is situated there and he is a residen that Territory. There are no laws regarding the estates of dece persons, no probate courts, surrogates, or probate judges, and no having any authority to administer upon estates.

One instance which fell under my own observation will suffice a example. William Phillipson, postmaster at Sitka, and Navy agent, died on November 2, 1877, intestate, possessed of certain and personal property. He also kept a small store, and at the tim his death had on hand a stock of goods. He left a widow, and children by a previous wife.

Soon after his death began a contention and general scramble fo spoils. He had certain creditors in Oregon, who visited Sitka, and a eral division of the property of the dead man took place. It was partitioned off, the creditors getting the lion's share and the widow their generosity vouchsafed her. Two children of tender years left out in the cold, to subsist upon the charity of strangers. O these children was taken to Portland and placed in an orphans' h under the charge of the Presbytery of Oregon. I found in the cus of the deputy collector at Sitka a certificate of deposit from the U States assistant treasurer at San Francisco, showing the Navy De ment had deposited to the credit of Phillipson, and payable to his $150, for three months' salary as coal agent. This I had sent to O and placed in trustworthy hands, and property thus coming withi State of Oregon will give its probate courts jurisdiction, letters of a istration will be applied for, and this much will be saved to thi little fatherless child. Since I left Sitka a schooner belonging t estate has been sold, and the proceeds will arbitrarily be devo the babes.

A man may be murdered in Alaska, his will forged, and his scattered to the four corners of the earth, and there is no powe court of chancery to redress it.

COLLECTION OF DEBTS.

Alaska is the paradise of the dishonest debtor, for there is no law of any kind throughout the land for the collection of debts. No redress but the shotgun and pistol. It requires no argument from me to urge a change of affairs in this respect. Business can not prosper when the merchant has no security whatever for the merchandise sold by him. No wonder the settlement of the country is retarded.

THE PRESENT CONDITION OF ALASKA AND ITS FUTURE GOVERNMENT.

The general reputation that Harpers' Magazine heretofore has borne for truth and veracity and the care with which its articles have been selected have given it a world-wide reputation. But any publication of the kind is likely to be taken in, and from the very high character enjoyed by the magazine, it can not be denied but that the article of Mr. Elliott has had a very damaging effect upon Alaska. It is written with a certain air of vraisemblance calculated to deceive the unwary and grossly impose upon the credulity of the reader. It is not so charged in express words that such was the intention of the writer. I prefer to ascribe it to gross and palpable ignorance rather than to intentional design. The marplot says:

> The hundred or so white residents mentioned are scattered principally as traders between Norton Sound, of Bering Sea, and Sitka, and, naturally enough, they are not making much demand for a Territorial government; and Congress has wisely turned the entire charge of the interests of the Government and the natives over to the Secretary of the Treasury, who is abundantly able, with a revenue steamer, two or three special agents, and a collector of customs, with his four or five deputies, to enforce all needful law and order. Several "patriots," however, living on Puget Sound and in Oregon, have been urging some legislation by Congress which would result in creating a few offices up there, but they have met with deserved failure thus far.

I think enough has been said already to show that "the collector and his four or five deputies," etc., are not enough to "enforce all needful law and order." At any rate, such is the opinion of one of the most fearless deputies who has ever done service in Alaska, Mr. Dennis, a soldier in the Federal Army, wounded during the war of the rebellion, a man of nerve and courage, and one who has stood up alone, unsustained by any superior officer or authority, and by his own right arm and power and force of will put down the rabble at Wrangell, broken up the manufacture of hoochenoo, and kept the Indians in subjection. There is, however, a limit to human endurance.

The following correspondence is submitted:

> CUSTOM-HOUSE, WRANGELL, ALASKA,
> *Collector's Office, June 15, 1878.*
>
> DEAR SIR: In the event of no collector for this district before the 1st of October next, I desire to inform you that I wish to resign the office of deputy collector, to take effect September 30, 1878. Will you please notify the Department of this fact, and request that I be relieved by that date?
>
> I am, sir, respectfully, your obedient servant,
>
> I. C. DENNIS, *Deputy Collector.*
>
> Maj. WILLIAM GOUVERNEUR MORRIS.
> *Special Agent, Treasury Department, Port Townsend, Wash. Ter.*

And upon the same day the following letter was also transmitted:

> CUSTOM-HOUSE, WRANGELL, ALASKA,
> *Collector's Office, June 15, 1878.*
>
> SIR: I have the honor to transmit herewith my resignation of the office of deputy collector of customs, port of Wrangell, to take effect on the 30th September next.

I take this step on account of the manner in which the Department is running t Territory.

I have acted in the capacity of arbitrator, adjudicator, and peacemaker until bearance has ceased to be a virtue. Within the past month one thousand complai by Indians have been laid before me for settlement, and as I am neither Indian ag nor justice of the peace, I decline the honor of patching up Indian troubles for time longer than can be obviated.

Again, the prospect for Congress to extend law and order over this country lo gloomy, and in the absence of law at this port no compensation that the Governm could offer me would be any inducement for me to act in the capacity of dep collector another year.

For quietness to reign at this port and other portions of the Territory, there m be some power here beyond that conferred on deputy collectors. The sending armed vessels to this district has a pacifying effect on Indians while they ar these waters, but as soon as they are absent the old deviltry commences ag What this country wants is law, and without it she will never flourish and pros

I am, sir, respectfully, your obedient servant,

I. C. DENNIS, *Deputy Collecto*

Maj. WM. GOUVERNEUR MORRIS,
Special Agent, Treasury Department, Port Townsend, Wash. Ter.

Mr. Dennis also wrote me a private letter at the same time and order to complete the history of his offering his resignation I m the following extract:

I wish to tell you some of my troubles and annoyances during the past month

When you were here you know that canoes were carrying freight up the r pretty fast. Well, the news spread over the country like wildfire, and a few after your departure the Indians were coming in from all quarters by hundreds

Everything passed off peaceably until the 21st May, at which time the c became so plentiful, and all wanting to carry freight up the river, that the St Indians became alarmed and jealous because of the competition. They made th and this created trouble and excitement among the outside Indians. All came with their complaints, and bothered me to death almost, but I lived through it the 22d and 23d we loaded 40 canoes with freight. These 40 canoes carried about 250 Indians as crews. The canoes left here, and by the time they had asc the river about half way the water became high, driftwood commenced runnin the canoes were unable to proceed. The Indians, therefore, discharged their c on the banks of the river, laid by it a few days, and finding the water still risin provisions getting low, the cargoes were cached, and all the Indians returned t port for further supplies. Previous to their clearing this port all the Indian drawn from the stores at this place several dollars in goods, which was charged captains of the various canoes, and to be deducted from the freight money on at Telegraph Creek.

Well, the Indians, after being here a few days, concluded that they would for higher pay (the crew I mean), and finding that they could not get a raise t refused to return. Here was a fix. Each Indian had drawn on his employer tune of several dollars, and if he did not complete the voyage the employer wo the loser. This was too much to stand. Consequent complaints commenced t to me by the dozen every day for two weeks. I believe I have had before me Indians in Alaska during the past thirty days.

The crews of the canoes refused to return and carry through their loads, and to make them do it. To accomplish this, I made threats of what would be don them if they did not do as I say. I became so mad and disgusted that I can killing two or three Indians. On the top of this trouble came a fight amo Hootzenoo Indians here—friends of mine. (?) Complaints were made, and I the difficulty by telling them to go to ———, and that if they kicked up any disturbance I would hang the ringleaders. So much for the Indians. I am a tired of having their troubles come before me, and I want to get away.

Mr. Elliott charges that "patriots," in quotation marks, are u the formation of a Territorial government for Alaska simply for th tion of "a few offices up there." He is publicly informed that, as patriotism in the fullest, broadest, and most complete and acce definition of the term is concerned, there are full as many gentle Puget Sound entitled to be classed as such, generically positively lectually and socially, as can be found hanging around the s the Smithsonian Institution for a living.

The following memorial to Congress from the inhabitants of W

Your petitioners therefore pray—

That a tribunal may be constituted for the purpose of adjudicating upon and enforcing rights, civil and criminal, either by extending to Alaska Territory the jurisdiction of the courts of Washington Territory, and causing circuit courts to be held in Alaska at stated periods, or by constituting a court of separate and original jurisdiction for Alaska Territory.

That two or more justices of the peace may be appointed for the Territory, with jurisdiction in civil causes to the extent of $500.

That there may be allowed to practice as advocates in such court of extended jurisdiction, or in such court of separate jurisdiction and before a justice of the peace, any person being an attorney of any of the supreme courts in the United States, or a barrister or attorney of the supreme court of British Columbia.

That proper regulations for the practice and procedure of any such court, or before a justice of the peace, may be made and passed, and that such further matters may be done as the premises require.

And your memorialists, as in duty bound, will ever pray, etc.

John M. Vanderbilt,
Thomas Ardiel,
Henry E. Cutter,
M. C. Ireland,
J. W. Waydelich,
A H. Dennis,
W. K. Sior,
G. H. Church,
George Fairbrother,
James McCloskey,
John Burns,
Frank Hobin,
Gustav Hauck,
Daniel Dixon,
William Kirkpatrick,
Jules Carl.
Theodore Davis,
James Shobroyd,
C. F. Jones,
John Williams,
John Grant,
George Rath,
Lewis Hart,
John McKenzie,
Vivian George Brodie,
Robert Stevenson,
W. Humphrey,
L. W. Gifford,
Robert C. Dore,
A. MacCrellish,
R. H. Wood,
Levy Stacy,
Paul Kereloff,
C. G. Cogan,
James Moore,
J. B. Hugo,
Charles Daicker.
M. S. Richards,
H. Kemrostan,
Reuben Albertstone,
J. Fletcher,
William Wright,
George Livingston,
Charles H. Hall,
A. S. White,
John O'Donnell,
John H. McCormick,
R. W. Colvin,
I. Frohman,
J. Watson,
R. R. Clark,
T. J. Stephens,
R. Tennant,
W. I. Stephens,
C. C. Panel,
A. Martin,
J. F. Hixon,
Alex. McFarlane,
Samuel Johnston,
E. E. Stark,
James C. Fox,
Bernheim & Mans,
Henry Gerke,
James C. Parker,
I. C. Dennis,
John Allen,
A. McInnes,
T. F. McIntyre,
A. D. Fraser,
J. Juneon,
George Davison,
W. W. Russell,
M. Powers,
J. A. Gardner,
Oscar B. Cooper,
A. O. Old,
R. S. Boyd,
H. Gaillard,
Frank Kelley,
G. W. Ramsey,
W. G. Standish,
E. Underwood,
William Read,
James Rosowell,
James Smith,
John Boyd,
J. S. Brown,
Edward Donehue,
Thomas Russell,
George H. Fox,
John J. White,
Wm. A. Simmons,
D. L. Shoemaker,
Robert Hicks,
Jorges Lorensen,
Rob. Burns,
James Hade,
Frank Mahony,
P. Liberty,
Edwin Jenkins,
Charles McVitter,
Robert Kent,
Thomas J. McCully,
Thader Renley,
W. H. Bennett,
James Stevens,
Thomas O'Connor,
William Smith,
G. Fitzstubbs,
Oliver Price,
John Schmidt,
A. Choquette,
John Vere,
A. Beedy,
W. Meridith,
Clarence S. Doan,
Edward Francis,
Walter T. Dunson,
A. Meridith,
John Lajlune,
Alexander Mathieson,
William Waring,
Charles Grant,
T. C. Knauff,
Richard Fish,
Richard Welsh,
James McEntee,
W. Dunton,
E. G. Riley,
E. P. Hess,
Albert Herman,
J. A. Workman,
P. McGieney,
William Sanders,
Edgar Blain,
H. Jones,
H. B. Colfax,
S. P. Maclyn,
W. R. Hull,
E. W. Boville,
And many others.

But Mr. Elliott, not content with this onslaught, makes mention again in his magazine work of destruction, Harper, page 803, wherein he says:

Though we know now that Alaska will never be, in all human probability, the land for us, yet we have one great comfort in its contemplation, for we shall never be

signed why this service should not at the present time be extended odiak Island, and subsequently, when necessity requires it, to the tian Islands farther west. In fact, there is every reason it should one. We have a deputy collector there who has no means of comicating with his principal at Sitka, save via San Francisco, and then ut once or twice in a twelvemonth. There are American citizens ng at Kodiak, and in the immediate vicinity, who are cut off from all l facilities and communication with the outside world. Alaska is a penal colony, and if our adventurous citizens cast their fortunes re in search of mineral treasures, and the development of the fishes and the internal resources of the country, they should not be punsed by being buried alive.

Mr. Ivan Petroff, a historian and translator of languages, accomnied the revenue steamer *Richard Rush* in her trip last spring to the ibilof Islands, and writes thus:

Throughout Alaska, except at Sitka, there is a total want of mail facilities. It is y by the casual visits of whalers that intelligence from the great world is received ntervals between the annual visit of the United States revenue cutter, which is ted forward to by all the inhabitants, temporary and native, with the liveliest iety. It was only last May that Mr. John M. Morton, special agent of the Treasury St. Paul, first received word of the death of his father, the late Senator from diana, and the mournful intelligence was then by accident communicated to him a whaling captain, just arrived, whom he met while taking a stroll on the beach. ing the stranger, Mr. Morton asked him what news he brought from the part of e world he had last left. Without the least idea who his questioner was, the ptain proceeded to recall all he could in the way of news, and had ceased, but, ving just then recollected, he said—"Of course, you have heard that Senator Mora is dead." The announcement, so bluntly made, caused his questioner to start, d then he learned from Mr. Morton's own lips that he was the son of the distinished dead. The very next day the Government cutter arrived at St. Paul, with e newspapers containing the account of the event.

A Sitka correspondent of the San Francisco Chronicle thus discourses:

A citizen of California, Oregon, and Washington Territory, or of Wrangell or Sitka, shing to visit the Kodiak district or the Aleutian Islands, must hire or buy a vessel carry him there. You have a mail service from San Francisco to Tahiti, another the Fiji Islands, and one is proposed to the Samoan Islands, yet these districts of ritory, which may easily be made tenfold more valuable than all the islands of e South Pacific, are outlawed.

This cutting off of mail service, however, is no new thing with Mr.

him, to wit, "Much as the coast looms up on the map, we shall never have to provide light-houses for its vacant harbors," that he is very much mistaken, and he will live to see the day when lights will be erected at some of the very points designated in this report.

STATE OF AFFAIRS.

The Russians exercised over the inhabitants of Alaska despotic sway, and held them in absolute subjection. They treated them as brutes and flogged them unmercifully for theft and petty misdemeanors. They punished crime promptly with severe corporal chastisement or imprisonment, and regarded the Indians as not more than one degree removed from dumb beasts. They held the power of life and death over their subjects. They had over two thousand soldiers, employees, and retainers ready to do the bidding of the local supreme authority. Ships of war were always at hand to bombard the villages into submission. The natives were thus completely at the mercy of their rulers.

When the sale to the United States took place, the forts were garrisoned with Federal soldiers, new posts were located and built, and for years the country was under strict military rule. The Indians were taught several severe lessons by the soldiery and the gunboats, and they continued to all intents and purposes in their condition of serfdom until the country was formally abandoned by the War Department, and subsequently transferred to the sole control of the Secretary of the Treasury.

Suddenly they awoke to the knowledge that they were free men; that as far as outward appearances were concerned there was no power or authority to interfere with their acts. They saw the outward change of things, and that the pomp and panoply of war had departed. They beheld the white man, Boston man, and King George man, black man, yellow man, Chinaman, Indian, Aleut, Esquimaux, and men of all colors, nationality, and nativity, all associating together upon the common terms of sweet republican simplicity. There was no authority at hand to punish the evil doer, no power to redress savage enormities. It was this feeling of insecurity, this sudden transition from order to chaos, which induced Collector Berry to urgently invoke aid from the Department, seconded by myself, in order that no outbreak might occur.

It is to the credit of the natives to say they have behaved themselves with commendable and extraordinary prudence, and that the repetition of the horrors of Hayti and San Domingo have not been reenacted. It only goes to prove the correct estimate formed of them by Collyer, Dodge, and others. I will venture to say that nowhere on the uncivilized globe would such an order of things prevail.

That there have been periods when great danger was justly apprehended there can be no question, and that, unless the strong arm of the Government is interposed, the time will come when the civilized world will stand aghast at some gorgon horror perpetrated, there can be no dispute. It is the natural order of things. The two races must eventually clash; and it will not be any studied plan of revenge for injuries, fancied or real, but will be the result of brutality and oppression upon the part of the white man, and craze, fear, deviltry, and intellect besotted by rum upon the part of the Indian race.

It is to prevent this rupture, of bloodshed, rapine, and murder, that my efforts have been directed, and if anything I have written, said, or done will contribute to establish a more healthy and salutary condition of affairs in this far off, neglected, and much maligned country, I will

be more than content, and feel fully repaid for any exertion, anxiety, or trouble it has caused me.

This narrative will not be complete unless the reports of the several revenue-marine captains are given who have visited the Territory since it has been under the control of the Treasury Department. First is the report of Captain White, who was sent there upon the representations of Collector Berry and myself soon after the withdrawal of the military.

Captain White reports as follows:

UNITED STATES REVENUE STEAMER THOMAS CORWIN,
Sitka, Alaska, August 12, 1877.

SIR: In compliance with the Department telegram of the 26th ultimo, I proceeded to this place, where I arrived at 4 p. m. of the 10th instant, and, as the mail steamer will leave here this p. m., I have the honor to submit the following report:

Soon after mooring, a number of the natives gathered around the vessel in their canoes, with fish, game, etc., for the purpose of trade, and from them I learned that most of the men were away fishing, as is their custom at this time of the year, and none with whom I conversed seemed to know of any particular trouble brewing.

Early the next morning, accompanied by an officer, I visited the custom-house building, and found there Mr. E. G. Harvey in charge, Collector M. P. Berry being absent, at Victoria, Vancouver Island, for medical treatment.

Mr. Harvey seems clearly to understand the situation of affairs here, and several of the traders support his views in the main. It is the opinion of Mr. Harvey that any trouble which may arise will be due to the excessive use of a very fiery and intoxicating drink, which the Indians and creoles (or half-breed Russians) easily distil from either molasses, sugar, potatoes, or the various kinds of wild berries growing here—molasses, however, being the chief article relied upon. The making of the drink (an art learned from the soldiers) is now being carried on by both Indians and half-breeds, and in quantities to suit the demand, so that all can have a "big drunk" whenever they are so disposed, and at such times serious trouble may possibly arise. In my opinion, however, much of this could be averted by the traders themselves if they would not dispose of molasses, save in very small quantities, or, better still, not at all, as the principal use of the molasses imported, which is of the cheapest and most inferior Sandwich Island production, is for the manufacture of this intoxicating drink. Judging, however, from the class of men trading here, I think it unlikely they will refrain from trading in anything the law allows at least.

The mode of distilling this drink is very simple, and the apparatus used inexpensive in the extreme, viz, two coal-oil cans and a very small coil of pipe, which is easily put out of sight or destroyed upon the slightest chance of detection; and I am informed that many did so destroy or remove to the woods these petty stills upon our arrival in sight, especially when it was seen to be a Government vessel.

After diligent inquiries and careful observation since our arrival here, I have not discovered any breach of the public peace, nor has my attention been called to any particular act save a few petty trespasses committed by the Indians, half breeds, and white men as well, soon after the departure of the troops.

While the Indians, more thoughtful, are now preparing fish for winter use, the half-breeds, from their utter shiftlessness and inordinate cravings for strong drink, sacrificing all their summer earnings to obtain it, will, I am afraid, suffer for food this coming winter.

The great desire of all with whom I have conversed seems to be that the Indians should be made to understand that the Government has not entirely abandoned the country to them, and that its presence here should be represented by an armed vessel or return of the troops. I would here respectfully suggest the propriety of having an armed vessel visit this place and the principal Indian villages in this archipelago once every two or three months at most, as that of itself would have a greater restraining influence over both whites and Indians, and tend to the better enforcement of the laws and preservation of the public peace than by stationing troops at this point. Carrying out this view, I would respectfully inform the Department that, after becoming satisfied that our stay here will be no longer required for the proper enforcement of the laws for the time being, I shall proceed to visit some of the principal villages and Fort Wrangell, thence to Port Townsend, Wash., where I will leave Pilot Keene, and report to the Department, exercising my best judgment at all times for the best interests of the Government.

I have to add that, from the best data obtainable, the population of this place is as follows: Twelve or 15 white men, of various nationalities, claiming to be American citizens; 5 full-blooded Russians, including the priest, and about 270 half-breeds, including men, women, and children. The Indian population varies from 300 to 1,500, according to the season. The priest informs me that the half-breeds are a low,

degraded class, over whom he has no influence, and that more fear is to be apprehended from them, when drunk, than from the Indians themselves.

I have the honor to be, very respectfully, your obedient servant,

J. W. WHITE,
Captain, United States Revenue Marine.

Subsequently in October, Captain Selden, commanding the cutter *Wolcott*, visited Sitka for the purpose of being present at a potlatch to be given there by Sitka Jack.

Captain Selden made the following report:

UNITED STATES REVENUE STEAMER WOLCOTT,
Sitka, Alaska, October 18, 1877.

SIR: In obedience to your telegram of the 1st instant, I have the honor to report my arrival at this port after a passage from Port Townsend of eleven days.

The situation of affairs here remains unchanged since the cutter *Corwin* left. The festival among the Indians is nothing new; they have continued this fashion of holding an annual celebration, similar to this one, for years, and I learn from a reliable source that no trouble has ever come from it, nor is there likely to now. The Indians are noisy and boisterous in their mirth, and assume immense airs, and swagger around with some insolence, but never make any threats. Sitka Jack, the chief of the Sitka Indians, has recently built him a new house, and celebrates the event on this occasion by inviting the relatives of his wife, numbering about thirty persons, from the Chilkaht tribe. These are all the Indians from abroad, which, with the 500 Sitka Indians, comprise the total number present. With the exception of the mirth and noise incident to these festivities, I am assured by the chiefs that there shall be no disturbance.

The policy of trading spirituous liquors to them for temporary gain in trade has assisted in degenerating the race, and effectually destroyed their industry. They manufacture a kind of liquor themselves, and the illicit introduction of spirituous liquors, so readily and secretly effected through the hundreds of harbors and channels of this archipelago, especially as the Indians, from love of rum, assist in warning and hiding the smugglers, is the great evil, and will probably produce trouble in the end.

I feel convinced, by what I have seen and learned since my arrival here, that the principal cause of the present alarm is occasioned by the pulling down of a portion of the stockade and some petty thefts committed by the Indians. Heretofore, while protected by the troops, the citizens felt so secure that they meted out severe punishment to the Indians for the slightest offense. Now their relations to each other have changed; the Indians in some instances are guilty of theft, which the people don't feel as secure in resenting as formerly. I can not learn that they have made any threats or manifested any hostility toward the whites, but the feeling on the part of the whites is that they are powerless to prevent any action that they may determine upon. Their alarm is rather as to what might happen instead of what is immediately threatening.

These Indians, unlike those in the interior, are entirely dependent upon the seacoast for the means of subsistence, and if they were driven away they could not live in the interior; they knowing this, and the certainty of punishment if they display any hostility toward the whites, fear the consequences too much to commit any depredations. In talking with them they express a wish to see the whites remain among them, and desire to keep on friendly terms with them.

Agreeable with my orders I shall remain here until the Indians conclude their celebration, and if nothing occurs after that to require the presence of the vessel here I shall return to Port Townsend.

Very respectfully, your obedient servant,

J. M. SELDEN,
Captain, United States Revenue Marine.

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

I think the condition of affairs in the Territory has been pretty well exemplified by the production of past correspondence to cause much further remark. I will therefore only take up some instances which have happened since April last, under my own observation, and derived from personal conversation with others, and from various sources.

The following narrative is given to show how completely the Indians are masters of the situation, and that when aroused by anger or any

case; it was entirely foreign to his own views as well as thos employed him; that it was his intention to buy all his fish fro Indians; that the Chinamen were brought along to make tin can when they had finished the cans they should be sent away. Fu more, if the Indians would learn to make cans, no more Chinamen s be employed.

Mr. Keen very adroitly impressed upon those present the folly o course, and I am satisfied it was owing a great deal to the tact and ment displayed by him that we succeeded as well as we did. I h little to say, only to remind them that the "man-of-war" was not lying at anchor at Wrangell, and if they wanted a little gunnery tice they should be speedily entertained.

After a long powwow, a calm succeeded the storm, good hun suddenly prevailed as their angry passions had become inflame order reigned in Warsaw.

In a very short time as many Indians as could be set profita work were hired by Mr. Hunter to discharge his material, the men landed in perfect security, walked up town, hired a cabin one of the tribe, purchased wood, and by nightfall were snugly ciled, with half a dozen dusky klootchmen (squaws) squatted o floor, and enjoying their fish and rice.

Thus ended what might have proved a very serious affair. only goes to show how utterly helpless are the white population the anger of the natives is aroused.

While at Wrangell, the water in the Stikine River was so shall to preclude steamboat navigation; a large fleet of canoes were into requisition. Some of Mr. Duncan's Indians from Metlecatlah over to reap the harvest. The Stikines objected, saying the belonged to them and that no King George Indian should be per to canoe it on the river.

The presence of the *Wolcott* was sufficient reason for this thre being carried into execution, and Mr. Dennis and myself made i evident to the Stikines that no such tomfoolery would be tolerat a moment.

As the treaty of Washington guarantees to both nations the free gation of the Stikine, and as the Indians of British Columbia a independent tribes and nations, like those on this side of the lin British subjects in the fullest interpretation of the word, the qu might naturally arise: If Indians resident in an American town (gell) shall, by force of arms, prevent British subjects from enjoyi rights guaranteed by our treaty stipulations, would not John B quick order see they were respected? Most assuredly he woul we would have the mortification of seeing a British gunboat Stikine maintaining British rights, which by all honor and the l nations we are in duty bound to enforce, but which, by reason having a sufficient maritime force, we are liable at any time to be defiance by a band of half-naked savages.

An article in the San Francisco Chronicle of August 4, 187 courses generally of the condition of affairs in Alaska. I mak following extract:

The last mail from Alaska brought news of the flaying and hanging of an woman for the alleged offense of practicing witchcraft, and the torturing of a girl on suspicion that she was an accomplice. These atrocities were commit the Sitka Indians within 300 yards of the seat of the central authority of the States in Alaska, namely, the custom-house at Sitka, yet no one was arme authority to interfere. The same Indians hold the white residents of Sitka mercy and may, whenever the inclination seizes them, flay and torture to th every white man, woman, and child of a community which the United States i

ters and insure Rath and Goldstein from the ignoble fate which threatened them. The Indians were resolved to have "money or life," and as they wisely preferred the former the issue was soon narrowed down to the money question, and how much? After much negotiating $250 and a plentiful supply of "hoochenoo" was agreed upon as the ransom of the two white men. Rath paid the money, the Indians held a grand potlatch, and all is serene again until another diseased Indian can manage to "step out" in the white quarter and force us to pay more for his worthless life than the whole tribe can earn in a twelvemonth. We must have a code of laws and a magistrate to administer the law, with a gunboat to enforce obedience to his decisions and rescue us from the operations of the barbaric code of our Indian neighbors, which they do not hesitate to enforce against the whites whenever they can find a pretext for extorting money by threats of taking life. This last occurrence and the successful swindle which followed it will embolden them to repeat their extortions until the situation of the white residents must become intolerable, and, no matter how barefaced the extortion may be, we have neither redress nor escape from their demands, as the Indians far outnumber the whites, and the Government has withdrawn all protection from its own citizens as well as from the Russian residents who were guaranteed protection by treaty which transferred Alaska to the United States."

I have made diligent inquiry as to the truth of the foregoing article, and can state it is substantially correct. The different recitals vary a little about the amount of hoochenoo consumed and the number of Indians made drunk; but upon one point there is no difference, and that is that the blood of the deceased comrade required a potlatch, and that the white men must pay for it.

Rath compromised the matter by the payment of $250 in money and left the country. He is a British subject, and resides at Victoria, Vancouver Island. I refrain from making any comment upon this extraordinary affair, save only to inquire, who next?

FORM OF GOVERNMENT.

There has hardly been a writer upon Alaska who has not suggested some peculiar form of government, save Mr. Elliott, who stoutly contests for none whatever. I had the honor, in 1876, to present some reflections to Mr. Secretary Bristow upon this subject.

Since that report was written, when the military were in possession of the Territory, I have had occasion to materially change my views. As matters at that time and from that standpoint were related to me, I think the position then assumed to be correct; but the country has very much changed since then, population has largely increased, mines have been discovered and opened, the fishing interests, timber and agricultural resources have become vastly more prominent, everything denotes a speedy settlement of the country, and the era has approached when a republican form of government for the Territory can not, either with safety or propriety, be longer postponed.

There are now sufficient American citizens in Alaska, not counting the citizens acquired by purchase, to entitle it to a Territorial form of government. There will be next year at least two thousand additional white persons in Alaska. The tide of emigration is setting thither. The Russians who elected to become citizens of the United States are not serfs, but free born, and have been guaranteed all the blessings of civil and religious liberty.

The question, to my mind, is well worthy of consideration, whether the opinion of Attorney-General Williams is correct, when he pronounced Alaska to be "Indian country." Many eminent minds, equally as well versed in the law as himself, have doubted the soundness of that opinion.

I do not desire to be understood as having in the course of these remarks arraigned either the Administration or Congress for not having provided for a better state of affairs than at present exists in Alaska. As an impartial observer, and as an officer of the Department, charged

with an important and delicate duty, I have endeavored to present the facts as they are, without addition, subtraction, or division. The responsibility must fall where it properly belongs, without any blame being attached to myself for bringing it too prominently forward.

When the present Secretary of the Treasury had the whole responsibility of the government of the Territory thrown upon his hands suddenly by the withdrawal of the military forces, he found himself without the proper vessels to enforce his authority, and if any error in the management of affairs has crept into the public service, it cannot be attributed to any lack of fidelity or zeal upon his part to afford protection to the citizens of Alaska and faithfully collect the customs revenue; it must be attributed to the lack of sufficient means at his command.

It is not deemed necessary for me to suggest any form of government for these people; that rests entirely in the discretion and wisdom of Congress; but that this abandoned, neglected country should be fostered, encouraged, and protected in every sense of the word, I think I can safely maintain without being deemed intrusive. To my knowledge, Alaska is the only Territory that does now and ever has directly paid any revenue into the Treasury of the United States, save the ordinary collection of taxes.

It is a well-known fact that the fur-seal islands of St. Paul and St. George, in the Pribilof group, are leased by the United States to a corporation known as the Alaska Commercial Company. I presume there are very few people in the United States who know how much revenue is derived by the country from this lease. The following figures are taken from a report made June 3, 1876, by the Hon. Fernando Wood, chairman of the Committee of Ways and Means of the Forty-fourth Congress:

When the proposition to purchase the Alaska Territory from Russia was before Congress, the opposition to it was very much based on alleged barrenness and worthlessness of the territory to be acquired. It was supposed that though there might be many political reasons for this addition to the American Pacific possessions, there were not commercial or revenue advantages. The value of those seal islands was not considered at all. Russia had derived but little revenue from them; indeed a sum not sufficient to pay the contingent expenses of maintaining the official authority. Under our system, however, we have a very different result.

The Alaska Commercial Company has paid into the Treasury, in rent and taxes, the enormous aggregate of $1,722,813.67.

The annual payment is $262,500 tax and $55,000 rental, making an aggregate of $317,509 every year. This sum is nearly 4¼ per centum interest on the original cost of the whole Territory of Alaska, including the seal islands referred to. Certainly the Government has no right to reproach itself for a want of mercantile shrewdness in the purchase of this Territory, nor in the prompt advantages which it has been enabled to obtain from it. If the Alaska Commercial Company has found its lease a profitable investment for its capital, the Government has no right to complain, so long as its own interests have been well secured, and the lessees have faithfully fulfilled all the conditions under which they obtained the franchise.

The amount then paid by the company up to the present time would stand as follows:

Tax on seal skins and rent of fur-seal islands to June 3, 1876		$1,722,813.67
Rent of fur-seal islands:		
1877	$55,000.00	
1888	55,000.00	
		110,000.00
The tax on seal skins varies according to the number taken, but the average for four years would produce—		
For the year 1877	262,289.93	
For the year 1878	262,289.93	
		524,579.86
Total amount paid		2,357,393.53

And, in addition to this, the company furnish annually to the Aleuts on St. Paul and St. George islands supplies amounting to $18,000.

THE ALASKA COMMERCIAL COMPANY.

The prevalent opinion in southeastern Alaska, and throughout the country generally, seems to be that this company are directly responsible for everything that occurs in the Territory, and that it is owing to their influence and opposition that Congress has hitherto failed to legislate for it, and provide some form of government, Territorial or otherwise.

It is rather a reflection upon our national legislature that it can be supposed they could be influenced, pro or con, by this or any other corporation; but owing to the fallen state and licentious character of the American press, the people are fast becoming educated to the belief that there is no honesty of purpose or uprightness in any of our public men.

I fail to reconcile satisfactorily to my mind the truth of this popular opinion and prejudice. The Alaska Commercial Company have not, to my knowledge, one dollar's worth of interest or property of any kind east of Kodiak Island. When they removed their headquarters from Sitka, they, wholly and without reserve, abandoned southeastern Alaska.

General McDowell has clearly refuted the charge of their connivance in having the troops withdrawn from the Territory; and even if they had joined in getting them away, there is nothing wrong or criminal in it, for it was the very best thing the Government could have done, always premising, however, the substitution of a suitable maritime force.

I know nothing absolutely whatever of the views of the company about the large extent of country to the westward, for the portion I have visited is only a small fraction of this immense part of our national domain. It is an empire in itself, being estimated to contain about 560,000 square miles.

I do not suppose it will be questioned that in the recommendation for a form of government for the Territory it is for one moment to be thought that it is intended to include the seal islands. By no means. These islands have been leased for twenty years to the Alaska Commercial Company, by virtue of the act of Congress of July 1, 1870, and subsequently approved by Congress, and they are under the direct control of the Treasury Department. To interfere with this lease by any indirect legislation would be to impair the obligation of contracts and would not stand the test of the courts.

The affairs of the company have been thoroughly investigated by a Congressional committee, and the result has proved satisfactory both to the Government and the lessees. They are faithfully fulfilling the terms of their lease, and there should be no disposition to interfere with them. The officers and stockholders of the company are all citizens of the United States. They have developed a new American industry, and have expended on its development more than $1,000,000.

The charge is, however, made that the company have large interests in the fur trade on the mainland, have established forts and trading posts, extending from the Kenai Peninsula to the Arctic Ocean, and that they seek, by discouraging immigration, to control all business of every kind or nature whatsoever, drive out all competition, and thus create a mainland monopoly in their favor.

I am unable to speak authoritatively upon this proposition, never having been in that portion of the country. I do know, however, there are other parties dealing in peltries on the mainland who stoutly con-

test this trade with the company, and divide with them a large portion of it.

I have never conversed with an officer of the company touching their feelings in the matter, save in a conversation had with General Miller, the president of the company, in which I casually mentioned the condition of things at Wrangell and Sitka. The general then assured me that his company had no interest there whatever, and had wholly withdrawn from that portion of the Territory.

Until I have more evidence than mere rumor and unfounded charges I shall be loth to believe this corporation is fighting the people of Alaska in their tearful and earnest prayer to the National Legislature to afford them some protection for their lives and property, while they prepare for the salvation of their souls in the future.

And right here the dual question naturally is self-propounded, Who is preventing the people from being guaranteed a republican form of government, and why has not Congress legislated upon this subject long since? The answer to one part of the question is obvious. There never has been but one man in the Congress of the United States who has lifted his voice in favor of a government for this Territory, and that was the Hon. J. H. Mitchell, Senator from Oregon, who did, during the Forty-fourth Congress, introduce a bill for the government of the Territory. That measure contained some grave constitutional objections, and did not become a law. No one seems to have championed the cause of "abandoned Alaska." She has no voice, no Delegate upon the floor of the House, to portray the wrongs she suffers, the redress she desires, and what she is now paying into the national Treasury, and what further resources she has to offer for the constitutional boon of enjoying, without being murdered, the fruits and sweets of republican liberty.

There will yet arise in Congress some champion of her rights, who will devote his time and sacred energies to her cause, and like the Phœnix from her ashes, her motto will be "Resurgam," and the next decade will tell a very different tale.

THE SENSE-KEEPER OF ALASKA.

So little is known about Alaska that whenever anything comes up in Congress relating to it information is sought wherever it can readily be found. The "informant" is ever on hand, with his work on fur seals comfortably tucked underneath his left arm, to impart all the knowledge extant about the country, "for he knows more about Alaska than any man living."

A decade has passed since we acquired this Territory, and for a decade has it afforded employment and subsistence for its present sense-keeper, but the next decade is warming into national existence, and it is about time this bubble was pricked and the bladder not quite so much inflated.

I am fully aware of all the consequences to be dreaded, the responsibility assumed, when rash enough to dispute the heretofore self-established authority from the Arctic Ocean to the Portland Canal.

I will not pretend to deny his valuable contribution to the ethnology of the Aleutian race, for he married a native of that tribe, nor question the accuracy of his description in the management of a bidarki, or the chase after the sea otter; in all of these outlandish sports and occupations he is perfectly at home. But when he comes to denounce a whole country and its people, set himself up as the vade mecum of popular intelligence, the great "I am" of a whole Territory and population, sneers at any prospect of a change for the better, and ventures to suggest to Congress what they shall and shall not do, and will not acknowl-

edge there is any merit in the land save what is evolved out of the deep researches of his own intellect, I say—yea, I repeat it—it is time the impostor is exposed, and, disagreeable as the duty has been, it has not been shrunk from.

This man seems to be the natural foe of Alaska, prosecuting and persecuting her with the brush of the pencil and the pen of an expert, whenever and wherever he can get an audience, and I attribute the present forlorn condition of the Territory to-day more to his ignorance and misrepresentation than to all other causes combined. He is accused of being the paid creature and hired tool of the Alaska Commercial Company, and belonging to them body and soul. I have made diligent inquiry, and ascertain he is not in their employ, and furthermore they repudiate the ownership. They should not be held responsible for the indiscreet utterings of the sense-keeper, notwithstanding the charge of ownership might cause him to be more readily listened to.

Doubtless when they have been attacked through the columns of the press they have employed this individual, who is unquestionably possessed with the cacoethes scribendi, to reply to unjustifiable onslaughts, and paid him for it, as they would any other penny-liner who makes literature and writing for the press his profession.

REVENUE-MARINE VESSELS FOR ALASKAN DUTY.

It is presumed there is no difference of opinion among those familiar with life in Alaska, who will contend that an armed vessel is not the most appropriate police force that can be used for keeping the natives in subjection. A writer in the Guide to British Columbia, speaking of the condition of the tribes in that province and the sudden influx of white men during the Fraser River mining excitement in 1858, remarks:

> Subsequently it became necessary to employ severe measures upon the west coast of Vancouver Island. One or two villages were bombarded by the vessels of Her Majesty's squadron, in order to compel the delivery of offenders guilty of crimes against a shipwrecked crew, and a salutary dread was established in all parts along the coast, which the periodical visit of a gunboat serves to maintain and strengthen.

It is now full three years since I assumed the proposition, and have steadily maintained it affirmatively ever since, that the vessels of the revenue marine in service on this coast were not calculated for an extended cruise in Alaskan waters, and I am clearly sustained by two of the commanders with whom I have conferred.

Secretary Morrill, in his remarks upon the revenue marine in his report made December 4, 1876, used the following language:

> The new vessel intended for the Pacific Coast is nearly ready to be assigned to duty. This will supply a want which the increasing commerce and the extension of our territory on that coast by the acquisition of Alaska have caused to be greatly felt.

The vessel alluded to is the steamer *Thomas Corwin*, now on the Columbia River station. This vessel carries more coal than the *Wolcott*, and is in every respect more fitted for the northern cruise. She carries sufficient canvas to take care of herself if an accident of a serious nature should happen to her machinery.

I had occasion to write the following letter on the occasion of the visit of the *Wolcott* to Alaska in 1877:

> OFFICE SPECIAL AGENT OF THE TREASURY,
> *Victoria, British Columbia, October 11, 1877.*
>
> SIR: I have the honor to inform the Department of the following condition of the cutter *Wolcott*, now en route for Sitka, the result of my own personal observation and conversation with her commander, Capt. James M. Selden.
>
> Upon reaching Port Townsend and learning the *Wolcott* was under sailing orders, I joined her and proceeded to this port. I do not hesitate to say that the circumstances under which she left for this cruise reflect no credit upon the Revenue-Marine

service. This vessel has been neglected, and she has been sent into a hostile country, at an inclement season of the year in those latitudes, with a battery defective and one-half gone, her steering gear incomplete, complement of officers reduced, and in a general state of ineffectiveness, the morale produced upon her officers and crew being anything but desirable.

The Department has repeatedly been advised of most of these facts. On January 31, 1877, Captain Selden reported the condition of his battery, and the loss of one gun at Cape Mudge, and asked his vessel be supplied with a complete battery.

On the 25th July, 1877, in reply to a letter from myself to him at Seattle, Wash. Ter., inquiring the condition of his vessel for Alaskan service, he fully set forth what was required. This letter was by me transmitted to the Secretary from this place a few days thereafter.

Again, on July 28, 1877, at the verbal request of the collector of the Puget Sound district and myself, Captain Selden made another detailed report to the Department concerning the effectiveness and general condition of his vessel.

The attention of the Department has repeatedly been called to the fact that there are stored in the custom-house at San Francisco two brass, smoothbore, Dahlgren 24-pound howitzers with carriages complete—the exact size of the battery of the *Wolcott*.

On the 20th of August, 1877, Captain Selden informed the Department of the bad condition of his rifle ammunition, stating it had been in the vessel a long time, and practice had demonstrated a large proportion was worthless, and 2,880 cartridges were required for, which have not been supplied. With this defective ammunition he is expected to fight if necessary. A few hours before he sailed, in the steamer which carried me to Port Townsend, he received a box of pistol cartridges from California. They are of the old paper pattern, requiring several minutes to load a weapon.

After Captain Selden received the telegram of the Secretary of October 1, he immediately proceeded to place his vessel in as effective and fighting condition as possible, and upon his own judgment took the responsibility of borrowing from private parties in Port Townsend some additional guns.

Mr. H. L. Tibbals and Messrs. Waterman and Katz, of Port Townsend, some years since purchased at Government sale the battery of the revenue cutter *Joe Lane*. Captain Selden borrowing of them three pieces, iron 12-pounders, which he mounted as well as he could, although I doubt very much if they will be of much service in action, there being no bolts for breeching or for the side tackles to hitch into. A spar was lashed outside each port and the train tackles and side tackles made fast thereto.

Captain Selden discovered among his ballast some round shot, grape, and canister which formerly belonged to the battery of the *Lane*, and which fitted these guns. He also obtained from the commandant of the military post near Townsend powder for cartridges, some shrapnel, grape, and canister, and primers and cylinders for the round shot.

On the 19th of April, 1877, the Department was written to by Captain Selden setting forth the incomplete condition of the steering gear, and stating that the repairs recommended by Capt. John W. White, superintendent of construction, revenue marine, did not answer the purpose. The same thing was mentioned in the property return for June, 1877.

My inspection shows that the wheel in the pilot house can not be used at all, the after wheel must be depended upon solely for steering the vessel, thus keeping the helmsman continually exposed to the weather, an unnecessary severity and actual cruelty in Alaskan navigation. The aforementioned periods are not the only times this particular subject has been presented to the Department to my own knowledge.

I also find the engineers' department illy supplied with facilities for making repairs to the engine and boilers, if required. There is not an extra tube in the ship, nor a piece of extra machinery; nor is there a piece of boiler iron large enough to make any extensive repairs in case of an accident. This cutter is deficient in officers; she left port with but two assistant engineers, and one of them sick and hardly fit for duty. About two hours before she sailed was received the detachment of Lieut. W. F. Kilgore, thus leaving the vessel with only two deck officers to stand watch and watch the whole voyage.

I deem it incumbent to present in detail the above facts. The probability is that no occasion will be required for the vessel to go into action; and, beyond the inconvenience of an insufficient detail of officers and suffering to the crew, no very bad results may follow. But it can not be denied that not sufficient attention has been given by those having this thing immediately in charge to the representations made by the commander of the *Wolcott* and myself as to the condition of that vessel.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

During last summer the *Wolcott* has been put in thorough order, having been laid up at Seattle for several months undergoing repairs; everything represented as deficient in this letter has been supplied, and she is now effective for duty on the cruising ground for which she was built and originally intended—the inland waters of the district of Puget Sound. It is true she can go to Alaska; she has been there three times on short cruises, but to remain there any length of time she is wholly unfit, and I think unsafe.

The following is the opinion of Captain White, superintendent of construction of the Revenue-Marine Service on this coast. It will be perceived he thoroughly sustains me in my estimate of the insufficiency of the present Pacific fleet:

REVENUE STEAMER THOMAS CORWIN,
San Francisco, Cal., September 22, 1877.

SIR: Referring to Department telegram of the 20th inst., asking me how soon, in my estimation, should cutter be sent again to Sitka, I answered on the 21st inst., "Indians have festival at Sitka last of October. There might be necessity for cutter at that time." In this connection, and as supplementary to my reports of August 12 and September 8, 1877, I would respectfully state that none of the cutters on this coast are properly constructed and provided to cruise or remain in the waters of Alaska, especially during the winter months; and if it is intended for one to do duty there at all seasons of the year—and it seems to be essential that the Government should be properly represented in those waters by an armed vessel—I beg to suggest that a proper vessel be constructed, and provided with a steam launch and other necessary appliances, that she may be able to take care of herself and afford some protection for the health and comfort of her officers and crew, as the inclemency of the weather is such that the stoutest can stand it but a short time on vessels not constructed and provided to suit the climate.

I have the honor to be, very respectfully, your obedient servant,

J. W. WHITE,
Captain, United States Revenue Marine.

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

The views of her commander, Captain Selden, have previously appeared in this report. Aside from the defects in the seagoing qualities of the *Wolcott*, she is very much deficient in accommodations for officers of the civil service—in fact, so are all the cutters. The wardrooms only contain sufficient berths and space, and that quite contracted, for the health and comfort of the complement of officers of the ship. When the *Rush* made her recent cruise to the seal islands she had on board two deputy collectors—one destined for Kadiak Island, the other for Unalaska. Both these gentlemen were compelled to occupy the berth deck for sleeping quarters.

The cabins are generally large and commodious, but there are no quarters there for a civil officer; neither can he have any privacy during day or night, even if he is the guest of the captain.

SPECIAL VESSEL FOR ALASKAN SERVICE.

I have reason to know that Congress will be asked at the coming session for an appropriation for the construction of a proper steamer for continued duty in the waters of Alaska.

The opinion of Captain White having been asked by the Department in reference to the necessity of the presence of a revenue vessel there, he replied as follows:

STEAMER THOMAS CORWIN,
San Francisco, Cal., October 4, 1877.

SIR: I have the honor to acknowledge the receipt of Department letter of August 17, "E. W. C.," addressed to me at Sitka, Alaska, but only received by me two days since at this place, transmitting copies of letters of the 26th and 28th of July, 1877,

from the collector of customs at Port Townsend, Wash., and Capt. J. M. Selden, commanding the revenue steamer *Oliver Wolcott*, relative to the necessity for the presence of a revenue vessel in Alaskan waters, etc., and directing me to prepare a special report of such facts bearing upon the statements made in these communications as I might be able to ascertain in my cruise to Alaska with the revenue steamer *Corwin*.

Since my reports of August 12, 1877, and of September 8, 1877, and 22d ultimo have anticipated much of what I deem a proper reply to the statements made in these communications, it will be necessary, therefore, to refer only to such portions of them as are more particularly covered by the said reports.

Captain Selden speaks of the possible necessity arising for landing an armed force and of the great assistance a steam launch would be not only for such an emergency, but for the pursuit and capture of canoes in places where the vessel could not go. It is also said the coast Indians may successfully invoke the aid of the interior tribes in their warfare against the whites. In reply to these statements, and speaking from my own personal observation and the experience gained in my former cruise to this portion of Alaska, embracing the waters of the Alexandrian Archipelago and extending from latitude N. 54° 40′ to latitude N. 60°, I have no hesitation in respectfully stating that, even for armed vessels of the deepest draft, there is no difficulty in approaching, within easy shelling distance, any of the villages and completely destroying them and the canoes, without resorting to the step of landing an armed body of sailors entirely inexperienced in the methods of Indian warfare and where the odds would be largely against them. A small vessel properly armed and equipped could accomplish all that a larger and more heavily armed one could, with the added advantage of celerity of movement and quickness of evolution. The tribes are scattered over a large extent of coast, and the massing of any force to carry into execution a plan of attack must be by canoes, since land travel, from the difficulties of the country, is out of the question.

I lay much stress upon the fact of an armed vessel being able to destroy their villages and canoes as a means of overawing them, because, do this, and their accumulations of perhaps years of toil and industry are swept away and their very means of a livelihood taken from them. The idea of the interior Indians coming to the assistance of the coast tribes seems to me visionary and farfetched, for there is no community of interests, feeling, or pursuits between them, and a jealousy of local rights and privileges animates them.

The presence of this vessel in these waters had an undoubted good moral effect, and, lest this should be too quickly effaced by the absence of the cause which produced it, I recommended that an armed vessel should visit them at short intervals.

The statement that the build of the *Wolcott*, with a quarter-deck without bulwarks, affording no protection to the officers and crew from the aim of breech-loading rifles in the hands of the Indians, applies to the other two cutters on this coast, and it would have great force and pertinence lying moored in the narrow harbor of Sitka, particularly with no steam up and the vessel within short musket range of the village. In these cases the only safety would be in keeping under way.

Referring to my letter of the 22d September, in relation to a particular class of vessels for the Alaskan waters, it was not intended to convey the idea that the cutters on this coast are none of them fit to do duty in Alaska; on the contrary, they are all able to make special cruises there for brief periods, including the winter months. The idea sought to be conveyed was this: That for an extended service in these waters at all seasons of the year a vessel specially designed would be required, and the steam launch there suggested was with the view of sending out and exploring unknown passages and anchorages, and performing such other work as could not be accomplished in open boats.

I have to add that the steamer *California* on her last trip landed in Sitka for the traders there 200 barrels of molasses—enough to make 200 barrels of liquor. The traders know full well that the chief, if not sole, use for this molasses is the making of liquor, thus importing into their very midst the probable means of their own ruin and destruction. If the importation of this molasses could be prohibited, it would go far toward allaying any fears of depredation by the natives.

I am, very respectfully, your obedient servant,

J. W. WHITE, *Captain.*

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

When the *Wolcott* took me to Alaska, her final coaling place was at Nanaimo, British Columbia. When we left that port our whole supply consisted of 83 tons, including all that could be stowed in her bunkers and on deck, while her daily consumption was from four to six tons, according to the rate of speed maintained.

The ship was dirty, uncomfortable, and unsafe. Her quarter-deck

was covered with coal in sacks two rows deep, and coal was stowed loose in bulk as far forward as her pilot house between her house and bulwarks, thereby greatly damaging her paint and woodwork and endangering the safety of the ship.

While it is true the navigation is to a great extent inland, Queen Charlotte, Wright, and Millbank sounds have to be crossed, and frequently one experiences there very nasty weather; and a vessel of the class of the *Wolcott*, loaded as she was, is not fit to be intrusted with the lives of officers and crew nor a peripatetic special agent. Neither has she stowage room for rations for the crew or mess stores for the officers for a long cruise. The space under the wardroom has been curtailed by a portion being diverted for the protection of loaded shell, and ship chandlery takes up a good deal of the remainder. The officers are greatly inconvenienced by want of sufficient store room.

A vessel intended for permanent duty in Alaska should have commodious quarters for both officers and men. All the space that can be afforded should be allotted them. It is cruel to expatriate a ship's company to that wet, damp, and inhospitable coast during the winter season, and then pack them like sardines in a box and deprive them of every human creature comfort. There should be a separate room constructed for the special agent who may be assigned to Alaskan duty, and there should also be one for the collector of the district. They should be of sufficient size to write in, and should be comfortably fitted up.

The vessel should not be less than 500 tons burden, and able to stow away with ease 200 tons of coal. She should have a flush deck fore and aft, bark rigged, and show plenty of canvas. She should carry a crew of at least 60 or 70 men. All the vessels now in the service on this coast carry too few men and have too small a battery. No vessel should be permanently stationed in Alaska without having a surgeon attached to her. It is impossible to procure medical aid otherwise. She should carry four broadside guns, one pivot gun forward, and a Gatling aft. The crew should all be armed with breech-loading rifles of the latest improved pattern, including pistols. The small arms now in use on the cutters are not effective. She should by all means have a steam launch for boat service.

Such a vessel, including the launch, can be constructed for the sum of $175,000, and possibly less, but it would be better to have the appropriation in these figures, as it leaves a margin for the bids of contractors. It does not follow because a certain sum is appropriated that necessarily the whole amount must be spent. Witness the construction of the *Corwin*.

CONCLUSION.

The foregoing remarks are respectfully presented for the consideration of the honorable Secretary. The facts stated have been collected with a good deal of care and patience, and I have asserted naught but what I honestly belive to be the plain, unvarnished truth.

This sums up all I have at present to say upon matters appertaining to Alaska. Should the Department think my presence at the seat of Government will tend to promote the interests of the public service and be of use in the matters contained in this report, I stand ready and will be most happy to proceed to Washington at a moment's notice.

I am, respectfully, your obedient servant,

WM. GOUVERNEUR MORRIS,
Special Agent.

Hon. JOHN SHERMAN,
Secretary of the Treasury, Washington, D. C.

APPENDIX.

[Published in Port Townsend Argus, September, 1877.]

COMMISSIONER'S REPORT.

Official report of James G. Swan, late special commissioner to procure articles of Indian manufacture for the Centennial Exposition, being an account of the cruise of the United States revenue-cutter Wolcott, in Alaska, during the summer of 1875.

The officers of the *Wolcott* were: Captain, Charles M. Scammon; first lieutenant, H. W. Harwood; second lieutenant, W. F. Kilgore; third lieutenant, W. K. Orcutt, chief engineer, James T. Wayson; first assistant, Horace Hassell; second assistant, A. L. Broadbent; pilot, J. W. Keen; crew, 28, including firemen, coal-passers, and boys.

The following report, made by me to the honorable Commissioner of Indian Affairs, of my cruise in the *Wolcott* to Alaska in 1875, although published in the official report of the honorable Commissioner, has never appeared in the newspapers, and at the urgent request of several of my friends I have consented to publish it in the Argus.

J. G. SWAN.

PORT TOWNSEND, *September 3, 1877.*

PORT TOWNSEND, WASH., *October 11, 1875.*

SIR: I have the honor herewith to present my report of my cruise on the United States steamer *Wolcott*, of the Revenue-Marine Service, during the months of June and July, 1875, in the waters of Alaska and British Columbia. Accompanying this report I send a chart, published by the English admiralty, of that portion of the northwest coast, from Fort Simpson, British Columbia, to Cross Sound, Alaska, on which I have indicated the route of the *Wolcott*, and the various Indian villages we visited.

We left Port Townsend on Monday, June 7, 1875, and after coaling at Nanaimo we again started on the 9th, and arrived at Alert Bay, on the west side of Commorant Island, near the mouth of Vancouver Island. I found at Alert Bay one of the finest specimens of a northwest coast canoe I have ever seen. She is 60 feet long over all, and 8 feet wide and 4 feet deep. She was made at Nootka, on the west side of Vancouver Island, for a chief named Mokiwilla, and by him sold to the head chief of the Nimpkish Indians, whose name is Klakotlas. I purchased this enormous specimen of Indian naval architecture, and ordered it delivered in good order in Victoria, British Columbia, where I had arranged to have the bill paid. She was subsequently towed to Victoria by a schooner, and taken charge of by Hon. J. W. Powell, Indian commissioner for British Columbia.

After landing at Alert Bay on the 11th, we proceeded without stopping, and on the 14th we passed Metlakatla mission, which was established twenty years since by Rev. Mr. Duncan, who arrived in October, 1857. Mr. Duncan is a zealous and indefatigable missionary of the Episcopal Church, who has been fortunate in making this the most successful mission on the northwest coast. The village was quite distinctly seen from the steamer, and by the aid of our glasses we could see the fine church and houses laid out regularly as a town. The church is a large Gothic structure, and was built almost entirely by Indian hands. Commissioner Powell informed me that Mr. Duncan had organized among the Indians a town government, with an efficient police force, and as he is a magistrate of British Columbia, he finds no difficulty in enforcing law.

Mr. Duncan was formerly located at Fort Simpson, a Hudson Bay Company's trading post, 12 miles farther north, and near the boundary line between British Columbia and Alaska. Here he commenced his labors with great effect; but, after a few years, he thought it better for the Indians to have a town of their own, and founded Metlakatla mission. As he was absent on a visit to Ottawa, we did not stop, but at 9.30 we arrived at Fort Simpson. Here we found another missionary, Rev. Mr. Crosby, a Wesleyan Methodist, who, for nine years, has been teaching the natives at Nanaimo, and who is a zealous and faithful man, combining, in a marked degree, high executive ability and a conscientious and unremitting labor for the temporal and spiritual welfare of the Indians under his charge. He is supported by the Wesleyan Missionary Society of Ontario, Canada, and by voluntary contributions of the Indians.

He is now building a large Gothic church, 50 by 80 feet, with buttresses, and tower 180 feet high. An architect at Victoria furnished the plan, and the work is superintended by a white carpenter, and the work itself is all done by Indians. The timbers, which are very massive, are entirely of yellow cypress, or Sitka cedar, and

will last for ages. The church has since been completed. The Indians here and at Metlakatla mission are the Tsimsean, pronounced by the whites Simsean. They are the farthest advanced of any Indians on the coast; and although they do not equal the Haidahs of Queen Charlotte Islands in the skill and beauty of their workmanship in gold and silver, or in their carvings in stone or wood, yet they are the most orderly, civilized, and well-appearing Indians I saw on my cruise. In illustration, I will cite an incident which occurred during the afternoon of the 14th.

I received a note from Rev. Mr. Crosby, stating that the Indians wished me to be present at a wedding feast that afternoon, and in company with Second Lieutenant Kilgore, of the *Wolcott*, we went to Mr. Crosby's house, to await the messenger from the Indians to announce they were ready. In a few minutes he came, and in company with Mr. and Mrs. Crosby and Lieutenant Kilgore I went to the lodge, which was an immense building of beams and planks, about 100 feet square. Tables were set for 200 people, who were present. The young ones and very old people had been first served with a feast of rice and molasses, fried halibut, oil, and such luxuries. Then the house had been cleaned, and tables set, with clean, white tablecloths on each, and knives, forks, plates, cups, saucers, and all appliances requisite for a civilized table use. We were conducted to a reserved table in the center, on which were several vases of wild flowers, tastefully arranged.

After a blessing had been asked and a hymn sung, the company sat down to eat. We were served with roast goose, roast ducks, potatoes, birds, rice, bread, cake, coffee and tea, all well cooked and very clean. A number of young Indians, with white jackets and aprons, acted as waiters, and everything was as regular and orderly as in a restaurant.

After we had finished eating, a hymn was sung by the whole company, and then we were called upon to make speeches; and here I will mention an incident showing that Indians are possessed of the virtue of gratitude, although it is generally denied that they have such feelings. A woman rose and requested permission to speak. She said that her heart told her that now was the right time, in the presence of her people, for her to say what she had wished to. She then stated that I had saved her life, and she felt very grateful to me. The incident is as follows:

On the 20th day of September, 1868, a party of Tsimsean Indians, consisting of 1[illegible] persons, bound from Puget Sound to Victoria, were overtaken by a dense fog, and camped for the night on Dungeness Spit, near the light-house. About 2 o'clock [illegible] the morning they were attacked by a party of Clallam Indians, and the whole party were massacred, except this woman, who was dreadfully wounded and thrown into the water for dead. She recovered enough, however, to crawl out on the beach where she was cast by the receding tide, and at daylight was found by the light keeper and placed in the family of a Canadian half-breed, who had a Tsimsean wife. I notified General McKenny, the then superintendent of Indian affairs, and by his instruction I attended to the case; and when the woman was fit to be removed, I took her to Victoria and sent her to Fort Simpson, on the Hudson Bay Company's steamer *Otter*, and with her a quantity of goods and coin furnished by General McKenny, sufficient to satisfy the friends of the murdered party, and prevent the commencing a war of retaliation. The chief trader of the fort (Mr. Morrison) informed me that this woman frequently spoke of my kindness, and now she took this public way of testifying to her gratitude.

The interpreter was a native woman, who spoke excellent English. After the woman had done talking, the interpreter said that she also wished to speak to the people, that her own mother and her uncle had been killed in that massacre, and she had heard how I had taken care of the dead bodies, and she felt gratified, and wished to thank me before the people there assembled. Rev. Mr. Crosby then made a few remarks, and at his suggestion the whole assembly arose and saluted me with expression of thanks.

An old chief then made a speech, in which he said that I had showed myself friend of the Tsimsean, and they never would forget my kindness to one of the people.

After this there were many speeches made on various topics, interspersed with singing of hymns, and the whole was closed with the doxology, to the grand tune of Old Hundred. It was one of the most interesting and successful Indian feasts that I have ever seen, and reflected much credit on the good judgment and management of the Rev. Mr. Crosby and his wife.

The following day I went with Mr. Crosby to visit the mission school. A large number of boys and girls were present, under charge of Mr. McKenzie, their teacher. I found the older scholars well advanced, and was much pleased with the progress they had made.

At the request of Mr. Crosby, I made an address to the children, which was interpreted to them by the native interpreter; for, although all their lessons are in English, and they are addressed in that language, they had not become sufficie

versed in it to understand the conversation of a stranger, without the aid of an interpreter.

Mr. Crosby has induced many of the Indians to give up their old heathen ways, and to remove the ancient carved heraldic pillars which adorn the outside of their homes. Some of them they have burned, others they have collected in a sort of museum, and it is through Mr. Crosby's influence, together with Mr. Morrison, the chief trader, that I expect to get some of these huge carvings for the Centennial. I have already secured one, a column 40 feet long, and others are promised me. From Fort Simpson we proceeded to Fort Tongas, in Alaska, some 15 miles distant from Simpson. This is an abandoned military post belonging to the United States, and now occupied by a United States inspector of customs and a band of 700 Tongas, under a chief named Ta-soot. He came on board and expressed a great desire to have a missionary and a teacher. He said he felt ashamed when he went to Fort Simpson to see all the children learning to read and write and all the Indians going to church, while the Tongas Indians had neither a missionary nor teacher, and he thought that "Washington" does not take as good care of the Alaska Indians as King George (the name they give the English) does of the Indians at Fort Simpson. He wished me to ask "Washington" to send them a missionary, and he would make his people build him a house, and he would compel all the Indians to send their children to school. Now, this apparent eagerness for a missionary is simply owing to a feeling of jealousy of the Tsimseans, who are given to boasting to the Alaska Indians that the English Government takes better care of them than the American Government does of the Alaskans. Still, a beneficial influence is exerted by the feeling, for in all my experience of over twenty years among the coast tribes the great difficulty has been to get them to allow a missionary to reside among them. This same feeling was exhibited in every village we visited during our cruise. It was the old cry, "Come over from Macedonia and help us." I sincerely believe if this matter were placed in the hands of the various missionary societies and they could send men like Mr. Duncan and Mr. Crosby, free and untrammeled by any of the restrictions that now necessarily surround the Indian agents under our present plan, that far more good would be effected among the natives, and at far less cost, than by our present system. The success at Metlakatla and Fort Simpson has demonstrated the fact that it is not necessary to have soldiers quartered among Indians, or even near them; and so far as my own observation has extended, I have invariably found that the presence of soldiers has a most demoralizing influence, subversive of all good.

After leaving Fort Tongas we proceeded to Fort Wrangell, at the mouth of the Stikine River, arriving there at 10.30 in the forenoon of the 17th of June. There were a great many Indians assembled at this point, attracted there by the expectation of getting work from the crowds of miners who start from Fort Wrangell up the Stikine River for the Cassiar mines.

The Indians who reside at Wrangell are the Stikine tribe. Some of them have fine, large houses built Indian style, but with the modern improvement of doors and windows. I conversed with several of the chiefs, and they expressed an anxious desire for schools and missionaries.

The following day, June 18, we left Fort Wrangell for Sitka, and arrived in Sitka Harbor the next morning. The Indians at this place are termed Kolashians, a term which Major Berry, collector of customs, informed me is not Indian, but Russian, and means Christian Indian, or those supposed to have been converted to the Greek Church.

An early voyageur, Captain Marchand, a French navigator and a man of great observation, says of these Indians near and on the shores of what Captain Cook called Norfolk Sound, that their tribal name is "Tchen-kit-a-nay," and as he mentions the word very frequently in his narration of the Sitka Indians, I am inclined to think he must have been correct. I am more inclined to this opinion from the fact that other tribes are called by names different from the tribal name. For instance, the Makahs, at Cape Flattery, under the treaty of Neah Bay. They are called Makah by the Indians of Puget Sound and Classett by the Indians of the west coast of Vancouver Island, but the tribe call themselves Kwe-nait-che-chat. It is an interesting question in ethnology, and Major Berry has promised me that he will investigate it. Captain Marchand performed his voyage during the years 1790, 1791, and 1792. There were very few Indians at Sitka, the greater portion being absent, fishing, hunting, or trading with other tribes for furs.

In one lodge I saw a large quantity of very valuable furs, which the Indians told me they were about to take to Fort Simpson to sell. I subsequently saw the same Indians at Fort Simpson, where they had disposed of all of them at the company's fort. This is a matter which needs careful investigation. The mistaken policy of the military at Sitka and the stringent regulations the Government lays on the traders drives all this lucrative trade into the hands of the Hudson Bay Company, and the blankets they receive in exchange for their furs are smuggled into Alaska without the faintest hope of the customs officers at Tongas being able to prevent it.

Again, on the plea that the Indians distilled whisky or rum from molasses, the commander of the military at Sitka issued orders that no person should be permitted to purchase more than one pint of molasses at a time. But the Indians can get all the molasses they want at Fort Simpson and of traders at various points, and, to illustrate the absurdity of this order, I can state as a fact that a schooner was cleared at Sitka for a trading voyage among the Indians at Takow, Chilkat, and other large villages, with 18 barrels of molasses on board, and this only a short time previous to our arrival.

The Indians learned the art of distillation from a discharged soldier, who commenced at a place called Koutznow, or Hootznoo, and smuggled his poisonous compound into Sitka, where he sold it to the soldiers and natives under the name of Hootznoo.

In a conversation with Major Campbell, commandant at Sitka, he was of the opinion that the Indians used only molasses, but I ascertained that they distill spirituous liquor from a ferment composed of flour and sugar. Lieutenant McComb, at Fort Wrangell, told me that he had seized a mash ready to be distilled, which was composed of wheat. Another officer informed me of a mash composed of potatoes, and Marchand states that in 1791 the Russians and Aleuts distilled liquor from the roots of a species of wild lily called by the Indians "white wild rice," from the rice-like granulations of its tuberous roots, and it is well known to all old traders that from time immemorial the natives of Alaska have produced intoxication by a beer made from spruce buds and other ingredients, which when old is as strong as brandy. This beer is called "quass." I was told by a reliable gentleman that he had seen and tasted of a very fair quality of liquor which an Indian woman had distilled from dried apples, and in the berry season they distill a liquor from the fermented juice.

I believe a great change would be effected for the better if our Government would adopt a different policy. Alaska has been declared Indian country and placed under military control. Nothing could be more suicidal on the part of our Government as regards the development and settlement of Alaska. Every soldier should at once be removed and their places supplied by a class of swift steam cutters. The country should be placed under the civil rule, and not the military, that deadly upas which blasts the prospects of every place when it has exclusive control. The country is not Indian country. It is ours by right of purchase from Russia. We obtained the fee simple to the whole of Alaska by that purchase, and there is not one word in the whole of that treaty which reserves any right of joint ownership to either Indians or any other people.

If the Government desires to open up Alaska to settlement the same inducements should be offered to settlers as were held out in early days to settlers in Oregon and Washington Territory. Then Congress should pass a law allowing goods to be imported into Alaska on a scale that will compete with the Hudson Bay Company, and it can be easily demonstrated not only that actual settlers will go to Alaska, but that the Indians will trade with our own people. I believe that the American people are quite as competent to deal with Indians as the English citizens of British Columbia. The experience of a series of many years shows that while, with our mistaken policy, we have had frequent severe, bloody wars with the Indians of Oregon and Washington Territory, the Indians of British Columbia, though numbering some of the most powerful and warlike tribes on the northwest coast, have never had any trouble with the colonial authorities which has not been instantly quelled by the presence of a gunboat.

If a Territorial government can be formed and the whole country placed under civil authority; if lands can be surveyed and liberal inducements held out to actual settlers; if duties can be reduced to a par with that of British Columbia on foreign goods, and if two or three gunboats or revenue cutters can be kept cruising on the coast, I am of the opinion that the country will speedily become settled.

AGRICULTURE.

There is a good deal of sphagnous or mossy land about Sitka, which by drainage can be made to yield good crops. I found at Sitka, where land had been so treated, that the season was far in advance of Fort Simpson, although so much farther north. On the 20th of June I saw lettuce and radishes fit to eat, pease in bloom, turnips and potatoes well up, and currants and other small fruits looking finely. Collector Berry told me that potatoes thrive remarkably well. Last year he saw a crop gathered which averaged three potatoes to the pound. Major Campbell informed me that last fall (1874) Dr. Fitzgerald, the post surgeon, gave him a potato which he (the doctor) raised which weighed 2 pounds. Major Campbell had it cooked in his own family and pronounced it of a most delicious flavor; and at Hootznoo one man raised forty tons of very superior potatoes, which were all sold in Sitka. Dr. Fitzgerald, Major Campbell, and Collector Berry also informed me that they had seen a turnip raised last year in Sitka which weighed 8 pounds and a cabbage weighing 20 pounds.

When Sitka was first occupied by Americans we were regaled with stories about crops—that potatoes would grow no larger than ounce balls and cabbage would not

d; but under a judicious system of drainage vast tracts of land can be made to ld abundant crops.

At Sitka I was successful in getting a good assortment of Indian manufactures m a trader who deals largely in Indian curiosities.

I talked with the Indians in one of their houses in the village, and they were very nest in their entreaties that a missionary and teacher should be sent among them. It is very true there is a Greek church at Sitka, with a fine chime of bells, with silver handeliers and candlesticks, and fine paintings, presented years ago by Catherine, Empress of all the Russias, but the present priests are Aleuts, who have no influence among the natives. The Indians told me they wanted a "Boston" (American) missionary, who would teach their children to read and write, just as the missionary does at Fort Simpson. I promised to report their wish to the Indian Bureau at Washington.

On the morning of the 23d we left Sitka and proceeded north of Baranhoff Island, and anchored at Lindenburg Harbor, near Chatham Strait, where we remained all night. The following morning we reached Koutznoo Point and village, on the northeast side of Chatham Strait, east from Lindenburg Harbor. We found the village regularly laid out in streets, lanes, and alleys. The houses were surrounded with garden patches planted in rows, well heaped up to admit of drainage. Each garden was fenced in, and each had narrow strips of bark stretched across from fence to fence over each bed to keep off the crows, which are exceedingly numerous and great pests. These wary birds, however, are always on the alert for a trap or a snare, and the strips of bark make them think the fowler has spread his net for them, and they keep away. This delusion is kept up by the Indians, who hang up the carcasses of several dead crows in each garden patch, tying their legs to the bark lines as if they had been caught in that position. It is a simple and very effectual contrivance. The Indians raise most excellent potatoes at this place.

Although most of the tribe were absent on a hunt, there were quite a number present, who beset me with entreaties for a missionary and a teacher, and I promised them, as I had done the others, that I would present their case to the Indian Bureau.

I procured several articles of these Indians, most of them of an ancient date. At 12 m. we left Koutznoo and ran down Chatham Straits for Kake village, on the north side of Kou or Koo Island. Here we remained all night. I procured several articles of those Indians who came on board the cutter to trade. The chief had a little boy with him and expressed a strong desire that the child should go to school. He also asked for a teacher to be sent among them. The Kake Indians are regular pirates. It was a party of this tribe who murdered Colonel Ebey, the former collector of customs at Port Townsend, and after committing murders and robberies for several years, finally had their village burned to the ground by the United States war steamer *Saginaw*, soon after the acquisition of Alaska. They have been pretty quiet since that time, but they bear an ill name among both whites and Indians and require careful watching.

We left Kake village on the 25th of June at 3 a. m., and ran down Chatham Strait, crossed Christian Sound, and at 5.20 we anchored at Shigan on the north end of the Prince of Wales Archipelago.

A very few Indians were here collected at a trading post recently established. They belong to a band called Hannegar or Engla, whose village is about 20 miles from Shigan, near Sackine Straits.

A few days previous to our arrival a woman had died, and the Indians had burned her body on the beach, and on the spot they erected a pole with a piece of white sheeting on top as a sort of flag, which will remain till blown down by the wind. It was at this place that we received definite information of the locality where the remains were found of Paymaster Walker, U. S. A., who was lost on the steamer *Wright* three years since.

A requisition had been made by General Howard on Collector Berry, of Sitka, for the *Wolcott* to proceed to the spot and recover the remains. We took on board the trader and his Indian guide as pilots, and left on the morning of the 28th, and at 9.15 we came to anchor at Klawark village, a trading post. The Russian name as shown by the chart is Klavak-han. Klawark is a corruption of that word.

This place, which consists of an Indian village and trading post, is situated on the west coast of Prince of Wales Archipelago, in latitude 55° 40′ north, longitude 133° 15′ west, and is approached from the ocean by several passages through the islands. There is a fresh-water stream emptying into the bay at Klawark, and great quantities of salmon are taken during July, August, and September. The place is quiet, secluded, and romantic, and most beautiful of any we have visited. There were a great many Indians at this place, both Hannegar and Haidahs. The lands of the latter it seems are not confined to Queen Charlotte Island, but extend to Alaska Territory, nearly to Klawark at Atka Rapids, as shown by the chart.

Here I purchased of a doctor or Tomanawos man a complete set of dancing rattles and conjuring sticks, and in the afternoon he came alongside the cutter with a party

and favored us with a dance of welcome. In the evening the young men had canoe races to show us their skill and perfect management of a canoe.

The trading post at this place is owned by a man named George Hamilton. As there are quite a number of Indian children here, and as it is a position easily visited by the Indians from various villages, it would be a most excellent position for establishing a school, and Mr. Hamilton, whom I met at Sitka, assured me he would do all in his power to render assistance to any teacher who should come among them. I saw some remarkably intelligent looking children whose parents lamented that there was no school for them.

It is not necessary to make treaties with the Alaska Indians or to remove them to reservations. My own experience among the Indians of Washington Territory has proved to me that the whole system is wrong. What these Indians all ask for is to have a teacher sent to them, one to every principal Indian village, and when there is such a universal desire to have their children instructed we may look for the happiest results.

At 3 a. m., on the 30th of June, we left Klawark for Howkan village, where is a trading post of Messrs. Sherrick & Turk, where we arrived at 1.55 p. m. Howkan village is on Klervak Strait, on the southwest part of Alaska, in latitude 54° 50′ north, longitude 132° 40′ west. It was here that we found the Indian who had discovered the remains of Paymaster Walker, U. S. A., who was lost at the time of the wreck of the steamer *George S. Wright*. This Indian's name is "Edinso," a Haidah. He had been employed three years on steamer *California* as coal passer during her voyages from Portland, Oreg., to Sitka, and has also worked in Port Townsend two and a half years cutting cordwood. We took him on board, together with Mr. Turk, his trader, Mr. Dickenson, and steamed around Kaigan or Kaigarny Point, to Port Bazan, an unfrequented harbor, where the Indian pointed out the remains, which were enveloped in a military coat with the chevrons of a paymaster of the United States Army upon the sleeve. The remains were taken on board by Lieutenant Kilgore, and placed in a box, and afterwards taken by the *Wolcott* to Fort Wrangell, and there turned over to the military commandant, and by him sent to Portland, and finally they were buried at Fort Vancouver with military honors. After receiving the remains we returned to Howkan.

The collection of carved posts and monuments at this place is very fine, but owing to the absence of nearly every Indian I could not procure any, especially as they ask the most fabulous prices for their carvings. Soon after our arrival a chief's wife came with some of her people. She is the most intelligent woman I have met. She had lived at Victoria long enough to acquire a knowledge of the English language. She told me the monuments and columns were to commemorate some great event, but mostly were erected in memory of the dead. She said, "We will not sell them any more than you white people will sell gravestones or monuments in your cemeteries, but you can have one made." She pointed to one pillar 80 feet high and most elaborately carved. "That cost," said she, "one thousand blankets," or $2,500. I found, however, that the cost is not what they pay the man or men who do the carving, but when a chief or headman thinks to prove himself as such he will cause one of the carved pillars to be set up in front of his house, and on the day of the "raising" he calls together a vast number of people and distributes blankets, flour, and other things among them. Another chief, feeling jealous, will put up another and a higher stick of carved timber, and the greater the number of blankets distributed the greater is considered the chief.

I subsequently secured one at Fort Simpson, which cost at Victoria about $120. I purchased several articles of Indian manufacture from this woman. Her husband, who was chief of the tribe, was a half-breed. He had recently died, and she had him in a box in the lodge waiting the decision of the Indians whether they would burn the body or bury it. The Indians have been induced by the influence of the missionaries to abandon their practice of cremation, particularly at Fort Simpson and Metlakatla, and the influence seems to have extended to Alaska.

On the morning of the 2d day of July, 1875, we left Howkan for Klemmakoan village on the north side of Cordoon Bay, and arrived there at 3 p. m. The chief of this village is a half-breed, named Kinowen, a celebrated silversmith, from whom I purchased some beautiful bracelets and other jewelry of silver.

This village is the largest and has more carvings than any I have seen, but the Indians were unwilling to part with any.

Kinowen came on board the cutter with his wife and four children, and told me if the American Government would send a teacher he would let him select a place to suit him, and the Indians would build him a house and send the children to school.

On the 4th of July we arrived at Fort Tongas, which is now a deserted military post, but the residence of about 400 Tongas Indians. The chief came on board and again expressed the same views regarding a school which he did on our first visit in June, and this time Captain Scammon, through an interpreter, told him that he would do all in his power to induce the Government to attend to the matter. Yahsoot, after

inviting us all to visit his village the next day, went ashore. The following morning I went ashore with Lieutenants Harwood and Kilgore to make a call upon the chief, and found that during the night a niece of Yahsoot had suddenly died. I was invited to see the corpse, and in company with Lieutenant Kilgore went into the house (Lieutenant Harwood not caring to join us). Here I witnessed a scene I never before have seen in all my experience among Indians during twenty-five years' residence among them. The body was laid out in state, dressed in the latest habiliments of silks and satins, and rich and costly furs. Around the body knelt her relatives singing in plaintive dirge. The father on one side kept up a conversation with his dead daughter, and the husband on the other side, bowed down with grief. The mother and other relatives about the feet. The whole scene was one of solemnity and very impressive.

At the request of the chief, I addressed them in terms of sympathy, and to show my respect I immediately returned on board the cutter without visiting any other lodge or making any purchases. This was appreciated by the Indians present, who thanked me for respecting their feelings.

On the 6th day of July we ran into Karta Bay to the Indian village of Kazan. Here I purchased of a trader several beautiful specimens of bead embroidery and shawl work, and on the morning of the 7th we proceeded to Fort Wrangell, arriving there at 6.22 p. m., and remained there until the 17th. The Indians were, like all the rest, earnest in their entreaties for teachers and missionaries.

From Fort Wrangell we proceeded to Fort Tongas, where we landed some stores for the customs officer, and then proceeded to Fort Simpson, British Columbia, where we arrived at 11 a. m. on Sunday morning, July 18. All the Indians, except some strangers from Alaska, had gone to church, and not wishing to disturb the congregation, I took a walk to see the new church which Mr. Crosby was building. As I passed the big lodge where we had the wedding feast, about a dozen Indians, men and women, came out, all well dressed. One of them had a book under his arm. I asked them if they were going to church. They said no, that they belonged to Metlakatla mission, and had been holding service after the Episcopal form taught them by Mr. Duncan. The Indian with the book under his arm told me that he was the minister, and then opening his book he handed it to me, pointing to a passage. "Read that," said he, "I can't read well; I wish I could." The book was the Bible, and the passage was the eighteenth and nineteenth verses of the fourth chapter of St. Luke. "I wish I could preach better," said he. The text was so appropriate and the serious earnestness of the whole party, together with the profound stillness of the village, made a deep impression upon me.

Just as I finished talking with this Indian minister, the congregation of Mr. Crosby's church came out; there were some five or six hundred of them, all scrupulously clean and well dressed. It was a sight I have never witnessed before, and it spoke volumes to my mind of the efficient training Mr. Crosby has given these Indians, and the wonderful change wrought in this tribe by Mr. Duncan, Episcopalian, at Metlakatla, and Mr. Crosby, at Fort Simpson.

I partook of lunch at the fort with Mr. and Mrs. Morrison. As we sat down to the table Mrs. Morrison, a native woman, asked a blessing on our repast, and when we had finished she returned thanks in the forms common among English people, and this in a simple and devout demeanor, which showed that she really felt what she said.

I was so impressed with what I had seen that day that I could not help the thought that the people whom we dare to call savages can teach the so-called Christians lessons of humility. I left Fort Simpson with a feeling of respect for those Indians that I have never before felt for any tribe I have lived with on the Northwest Coast, and I feel confident if missionaries and teachers are sent them by the various missionary societies of all denominations of Christians in the same untrammeled manner accorded to Messrs. Duncan and Crosby that the Alaska tribes will not only stay at home and trade with our own people, but they will be morally, physically, and pecuniarily better off than they will be should our present miserable policy of Indian agencies be thrust upon them.

At 2 p. m. we left Fort Simpson and proceeded on to Bella Bella, a Hudson Bay trading post, which we reached the next afternoon at 6.50. Mr. Kennedy, the trader, furnished me with a few curiosities, and afterwards sent me a valuable collection of ancient articles of Indian manufacture, and twenty-six large paddles ornamented for the big canoe. At 8 p. m. we left Bella Bella for Port Townsend, where we arrived on the 2d at 9 a. m.

JAMES G. SWAN.

The honorable COMMISSIONER OF INDIAN AFFAIRS,
Washington, D. C.

The foregoing report has been somewhat altered from the original to fit it for the press, but the principal features have been kept in view. I first show by the won-

derful success of the mission at Metlakatla and Fort Simpson that the presence of soldiers is not needed. Secondly, that these missions are conducted without expense to the English Government, the expenses being defrayed by a stipend paid by the missionary societies to the missionaries in charge and by voluntary contributions by the Indians.

Every denomination of Christians should have the privilege of sending missionaries and teachers to Alaska, the whole to be under the care of one general superintendent, who should visit every missionary station once in each year during the spring, so as to be able to make his annual report at the close of the fiscal year. These annual visits should be made in a revenue cutter. By adopting the plan of the missions in British Columbia, we would do away with that stupendous system of fraud of Indian agencies which, with the peculations and downright robberies of many of the agents, has been the fruitful, and in many cases the actual, cause of the Indian hostilities. Alaska presents a field for commencing a reformation in our Indian policy. It is separated by British Columbia from any contact with our treaty Indians, and the present seems a most fitting time to try the experiment.

JAMES G. SWAN.

PORTLAND, *February 29, 1876.*

DEAR SIR: The following items respecting Alaska were gleaned last week from Capt. J. W. White during our trip up the Columbia. I give them to you as valuable data.

Very respectfully, G. H. ATKINSON.

Gen. O. O. HOWARD, *U. S. A.*

In a pleasant conversation respecting the purchase of Alaska with Capt. J. W. White, of revenue-marine service, and superintendent of construction of revenue cutter at Albina, the following valuable facts were stated:

To the question, What is the value of the purchase?

Reply. It was a present. Count the fisheries, the furs, the lumber, the mines of coal, iron, and gold, the varieties of fruits and vegetables that can be raised, with its political value as a military station. The Yukon River is navigable for steamers 1,400 miles. It spreads out into five mouths, inclosing a level cottonwood region or delta of 70 miles, covered with grass. On Unalaska the grass is 6 to 8 feet high, and so thick that it must be parted to get through. It is so on Kodiak. The small Russian cattle that live entirely upon it are as fat as seals. They live on it all the year, needing no shelter but the ravines. The wild-pea vines grow 6, 8, and even 12 feet long, furnishing choice food for stock. The shores are rough and mountainous. We know but little of the outlines by our common maps, which are guesses, not surveys. Having been ordered thither by the Government in 1867, with instructions, I spent more than two years coasting and visiting all parts, from Fort Wrangell, Sitka, Aleutian Islands, Bering Sea, to the Bering Straits.

There are no proper icebergs in those seas. The warm Japan current divides at the southwest point of the Aleutian Islands, part going north through Bering Straits, which are too shallow for anything but field ice to pass, and only a narrow polar current passes down near the Asiatic Coast, as the one from Greenland passes down near the Atlantic shore. Ice floats off the shore, in winter and spring, and soon dissolves, with little danger to shipping. The region is chilly, even in summer, in the ravines hid from the sun; but parts open to the sun, though frosts and snow are on the mountains, produce luxuriant vegetation; and fruits, like blackberries—larger than the Lawton—and whortleberries, abound in their season.

What of the codfisheries? Some gentlemen in the business say that the Okotsk Sea has the better codfish banks, but as the food of this fish comes up on the southern arm of the vast Japan current that sweeps past under the Aleutians, why are there not good codfishing grounds under Alaska?

Answer. There are. I sounded the shores 700 miles by log northwest of Sitka, and found the entire length a codfish bank (with plenty of halibut also). The smaller codfish are in the shallower waters near the shore, of 20 or 30 fathoms; but the best fisheries are farther out, in 70 or 80 fathoms. For example, one day, when sounding south of Kodiak, wishing to lay in a store of codfish, I ordered the sails set back and the lines prepared. What bait? I had a barrel of Puget Sound clams salted for me with this purpose. I took my lead-line, as large as my thumb, attached five hooks above the lead, with a clam on each, and fastened to the davit. Soon the bites, one, two, three, often five, were felt. I threw the line over the pulley, and put four men to pull, and up would come two, three, and sometimes five cod, weighing 30 to 40 pounds apiece. We had out about 20 lines, and caught 250 fish in two hours. I met some fishermen, and asked why they did not fish farther out, instead of catching the smaller ones of 5 to 15 pounds each nearer shore. They replied that the deep-water fishing "was too hard work."

What of the coal fields?

Answer. I have seen coal veins over an area 40 by 50 miles, so thick that it seems one vast bed. It has an excellent steam quality; leaves a clear white ash. It comes out in cube blocks, bright and clean. It does not coke. The quantity seems to be unlimited. This bed lies northwest of Sitka, up Cooks Inlet or Bay, which extends to nearly 61° north and broadens into a sea in some parts. But our geographers plot it as an unimportant arm of the sea! They are wrong. It is a large body of water. Its shores, though in part mountainous, several valleys and plains and forests with large and various resources.

Did you see fur traders along the coast trafficking with the Indians?

Yes; they are everywhere gathering up furs.

Do they deal in whisky?

Yes; and tobacco, blankets, etc. A whisky distiller was tracked nearly up to Bering Straits. He thought he had got out of reach, but a vessel found him and broke up his business. They made desperate efforts to secure the furs.

Will the Aleuts trade for whisky?

Yes; they will drink themselves drunk if they can get it. They live for the most part on the Aleutian Islands and vicinity, and probably descended from the Japanese. They are a quiet, honest people. The Kalosh are another race of Indians, shrewd and warlike, who live on the mainland mostly of Alaska proper. You must show your power, and they will respect you and do what you say, or what they agree to do, exactly. When some of them came on deck I showed them over the ship. They watched everything and a little jocosely said, "Our guns are better than yours." They had Hudson Bay smooth-bore muskets. I said, "Ah, well." I ordered a gun set, put in a shell, and aimed at a clay bank on the face of an island 1½ miles off. I knew the distance, having been sounding it recently. The shell hit within 10 feet of the center, scattering the dust and dirt. At first the smoke hid the object and they laughed at the failure, but as it cleared, and they saw the dust fly, they threw up their hands in wonder and made no more jokes about my guns. The old chief asked me, without my guns, the next morning. We went, taking the precaution of course of having revolvers on our persons and Henry rifles in the boat in care of a dozen sailors. We went up to his house, and entered a room about 20 feet square, covered with the finest bear skins, with a raised seat or ottoman for us, covered with the richest fox, mink, and fur-seal skins that could be imagined. He arose as we entered and waved everyone to a seat with as much politeness as a courtier. We talked awhile about trade. He finally asked if we would drink something, saying, "When I was on your ship you showed me your house, and some wine was offered, and now I want to offer you mine." He then brought out a bottle of the finest Hudson Bay brandy.

The traders sometimes complain of ill treatment by the Indians. One reported a sad story of his wrongs to General Davis, and wanted the tribe punished. The General spoke to me about it. Knowing there might be two sides to the story, I said to the General, "I am to be near that tribe soon to survey, and I will learn the facts." On sailing near the village of the tribe not an Indian was to be seen. In a day or two I found one from another tribe and learned that they had fled, knowing what ill reports the trader would carry to the fort. I sent this man to tell the chief that I wanted to see him. He came with his attendants. I told him the reports, and wanted his story. He said, "I will come to-morrow at 9 o'clock and bring my witnesses and tell you." He came promptly, and as he related I wrote it out. The trader had come and offered tobacco and blankets, etc., for furs at the common rates, and the bargain was made. When they paid down the furs, he charged double rates for tobacco and blankets, and, by the way, they were three-point Hudson Bay blankets. Martens, at $1 in trade, worth $5, he would give only 50 cents for; otters, at $1 in barter, yet worth $5, he would give only 50 cents for. So with foxes, etc. "We would not trade in that way, and gathered up his goods and our furs and went home." "Did you know that was wrong?" "Yes; but he was wrong first, and our young men got angry. My son was with them. We have not used one of his things. I had them sent back to him."

Captain White said, "I then told the chief to report himself to General Davis at the fort. He went and I sent my letter with the statement by him to the General. When I went back this chief met me on the wharf with General Davis, who said he told the story exactly as I had written it, and brought all the goods except one plug of tobacco. The General had the trader arrested, and the collector took charge of him for smuggling, thus avoiding a war. This chief became our warm friend, but he said he would not trade with such men, but he would with honest men. He would give a mink for $1, fox for $1, and an otter for $1; every one of these skins is worth $5, thus giving the trader from 400 to 500 per cent."

Do Messrs. Hutchisson, Kohl & Co., or the Alaska Commercial Company, now styled, who have leased the fur-seal fisheries on St. Paul and St. George islands, take one seal per year more than the agreement allows?

No; it is not for their interest to do so. For illustration: I was sent to Alaska by the Government to reconnoiter, protect its interests, and make surveys, and was there in 1867, 1868, and 1869. I found four or five fur companies, Messrs. Hutchisson, Kohl & Co. among them, killing seals on those islands as fast as they could hire the Aleuts to do it. One eastern firm, who were too religious to work on the Sabbath, did, with others, sell whisky to the Aleuts in pay for furs, and these poor people had nothing for their work. I knew when the ships were gone they would be left without food. The great slaughter of the seals would soon destroy all of them. Following my general instructions to care for our country's interests, I put a stop to the slaughter, broke every whisky barrel, and poured it on the ground. The Aleuts thought I did wrong. They were so eager to get it that some of them laid down and sucked the ground and puddles of it, and got drunk. But I saved them, and I would not allow the traders to kill any seals except such as the Aleuts selected—the 2-year old males—and to a limited number. I required all of them to pay the Aleuts in provisions, clothing, and other needful articles, but not one drop of whisky. I reported my action to Secretary Boutwell, and my course was approved. The vast catch that year reduced the price of skins to $3 each.

The next year comparatively few seals came to the islands; but after this fur company got the sole right, they having bid highest for it, caught only 100,000 per year. The seals came back numerously the third year. That company have the lease of the two Russian islands, Barenleoff, on the coast of Kamtchatka, which furnish 30,000 per annum, and thus they have practically all the sources of supply, and have control of the European market, which gives them now $16 per skin. They pay the Government $2.25 or $2.50 per skin. They pay the Aleuts 40 cents each for killing, and extra for salting, and have some other costs. The Aleuts on these islands have good, comfortable houses put up by them, and a good school. Most of their children can read and talk English. Three or four of them are in San Francisco at school. They are fairly treated. All are doing well and some have funds in the San Francisco savings banks.

Had all the companies been allowed on the islands they would have destroyed the business and the Aleuts also. It is not for their interest as a company to kill more than the agreed number. The market is limited and easily glutted. They can regulate the supply and keep up the prices and make the most money in this way. Mr. Bryant, the United States Government agent there, takes the account of the skins from the Aleuts' daybooks; also counts them himself, and has his clerk count and keep the number put on board the ships. The Government inspector at San Francisco does the same, and thus the exact tally is checked off.

Does this company also trade in furs along the coast?

Yes; that is open, free ground, and they go in with the rest and, of course, have the fairest chance. Yet the fur business is only temporary. It is the mere surface product of Alaska. When we develop the coal and fisheries there will be grander results for labor and commercial enterprise. When the forests of Oregon and Washington are gone Alaska will be our permanent supply. From Sitka over the mountains east is the nearest route to the Cassiar mines, instead, as now, by the Stickeen River route. Gold is in these mountains, the Indians say, perhaps the head of supplies of the Cassiar, but the Indians will only reveal what they know to their friends, and a company can not go over unless able to defend themselves and well provisioned to remain awhile and test the region.

The best way for our Government to care for Alaska is to have two revenue cutters all the time in those waters, coasting about, well armed, supplied, and manned. If the Indians should combine they could easily take the fort and destroy the garrison. They have no vessel for defense or attack. Two armed vessels could protect commerce and control the Indians in a very economical way.

Do you not think it would be a good country for the Icelanders who are leaving their country? Would they not be our best means of developing the resources of Alaska, and of rightly dealing with and elevating both the Aleuts and the Kalosh Indians?

Yes, the very best defense we could have, the best colonists to save the country and the people. The sober, industrious Icelanders would soon make a Territory, and ultimately a State, of great value to our American Union. To move 10,000 or 20,000 of them there would be the grandest enterprise of the nation, and grant them lands and a home free. It will never do to make Alaska a county of Washington Territory, for whisky and misrule and strife will ensue, destroying the people and the country alike.

Will not the plan of bringing 10,000 or 20,000 Icelandic colonists to Alaska, granting them homesteads, insure a good civil rule and save that country to the United States as a growing and most valuable Territory?

Yes, emphatically; that is the thing to be done at once.

Will not the cod, halibut, and salmon fisheries, and the opening of the coal fields

and lumber interests there furnish the Icelanders a steady and profitable business as a native for their colonization, while it will subserve our commerce on the Pacific? Yes; the country is a good one for them, and they can make it a good one for us.

[First indorsement.]

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
Portland, Oreg., March 2, 1876.

Respectfully forwarded to the Adjutant-General of the Army. The following memoranda has been furnished me by Mr. George H. Atkinson, of this city, taken from the verbal statement of Capt. J. W. White, of the Revenue-Marine Service, superintendent of construction of revenue cutter at Albina. He was in Alaska in 1867, 1868, and 1869, on Government service. His report is favorable to the Alaska Commercial Company. He commends the Government official, Mr. Bryant, very highly for his carefulness in checking accounts at St. Paul and St. George Island. He believes with the past commander of Sitka, Maj. J. B. Campbell, Fourth Artillery, that the settlement of Alaska with the Icelanders, who are seeking to colonize, will be the best thing for the Government, for the Aleuts, and for the Indians. Undoubtedly every possible facility should be given to the colonists who come well prepared to develop the resources of that country, and who would soon afford us a steady and reliable basis for a Territorial government.

O. O. HOWARD,
Brigadier-General, Commanding.

[Second indorsement.]

HEADQUARTERS DEPARTMENT OF THE COLUMBIA,
Portland, Oreg., May 6, 1878.

Official copy respectfully furnished Maj. William Gouverneur Morris, special agent Treasury Department, for his information.
By command of Brigadier-General Howard.

J. A. SLADEN, *Aide-de-Camp.*

[From the Puget Sound Argus, November 23, 1877.]

WHY ALASKA SHOULD HAVE CIVIL GOVERNMENT.

FORT WRANGELL, ALASKA, *October 31, 1877.*

EDITOR ARGUS:

SIR: Within the columns of your paper having read Commissioner Swan's report to the honorable Commissioner of Indian Affairs relative to this country and its people, and believing the Argus to be an advocate of the best interests and future welfare of this Territory and its inhabitants, I conclude to send you for publication and circulation a petition by the residents of this place to the United States Senate, praying for law and order to be extended over this region.

This petition (hitherto annexed) states nothing but facts, and, in order to be brief, does not lay before the Senate one-tenth part of our grievances; therefore I take the liberty and ask space within the columns of the Argus in order that a few naked truths may be laid before the public.

Having been a resident of this Territory near eight years, and having had my eyes and ears open a portion of that time, I know whereof I speak.

This petition is not our first effort in striving to be recognized by the Government as a people having rights worthy of consideration. We have petitioned and repetitioned to the heads at Washington to do something for us, and thus far our petitions have accomplished nothing; hence we try again, and our prayer is that the present Congress will enact a law whereby whites and Indians in Alaska may obtain justice. We, as American citizens, claim as an inalienable right that we are entitled to protection in life and property.

Ten years have elapsed since the acquisition by our Government of this country, and during that time the Government has neither encouraged nor sanctioned the development of its resources. Nothing has been done toward improving the condition of its inhabitants, either intellectually or morally. All that has been done has had a tendency to stagnate our commerce, impede enterprise, and debase and demoralize the native inhabitants.

Misrule has been the fate of this Territory ever since the hoisting of the Stars and Stripes over it, and now we humbly ask a change.

An effort is being made to have the military return to Alaska, and in the name of humanity and common sense, I ask, what for? Is it for the best interests of the Territory that they should return? Look to the past for an answer. Whenever did they do anything for the country or the people in it that deserves praise? Did they encourage enterprise and assist in the developing of the resources of the country? No! It stands recorded that they foiled the developing of it, and placed restrictions on enterprise and improvements. Did they seek the enlightenment of the Indian and endeavor to elevate him to a higher moral standard? On this point let the Indians themselves testify. "Sakes," "Toyayah," and "Shoe-stack," chiefs of the Stickeen Indians say this: "For many years we have been desirous of having schools and churches established among us. With the coming of the military among us came a big church 'tyhee,' who told us that the soldiers were come to protect us, and that he would have schools established and churches built for us. Time passed; no schools were established and no churches built, and instead of the soldiers being any protection to us they sought to debase and demoralize us. Liquor they sold us that crazed the brain, and trouble came that ended by Captain Smith being killed and one of our men hung." Such is the testimony of Wrangell Indians regarding military rule here.

With the exception of Captain Jocelyn, no efforts were made by the military to encourage morality and sobriety among the Indians. I have known many soldiers while here make a business of manufacturing liquor and selling it to Indians. Even in the company's quarters stills were erected that produced the famous "kootzenoo." Soldiers and Indian women were frequently seen having a drunken spree, immorality being the watchword.

Then, for a change, Indians have been known to make liquor and sell it to soldiers by the glass at 10 cents a drink. I have frequently seen soldiers go to the Indian ranch for their morning drink of kootzenoo. These things were done and no efforts were made to prevent it.

And yet white men were arrested, confined, and prosecuted on a charge of having introduced and drunk at Wrangell a bottle of liquor. All attempts by the military to check the manufacture of liquor by the Indians were a farce, and consisted of pretended restrictions on our merchants and traders from selling molasses and sugar.

I have never known a military man to speak well of Alaska. They all seemed to have become soured on arrival here, and were certainly deploring their fate of being stationed in such a detestable place.

The future welfare of this country and the best interests of the people in it demand that we have no more military rule, but that instead civil authority, judicial power, and law be tried.

Our Indians here are not a band of cutthroats and pirates that require bayonets and brass guns to keep them in subjection.

Here at Wrangell the Indians, although greatly demoralized, are somewhat civilized, and after many efforts a school has been established on a permanent basis at this place. The Presbyterian Board of Missions having taken the matter in hand, a lady by the name of McFarland has been sent here, and she has now a daily attendance at school of about sixty Indians, old and young, most of whom have mastered the alphabet and many of whom can read sentences composed of words of one syllable.

This speaks volumes for the Indians of Alaska, especially when it is remembered that all the Indians of this Territory desire teachers and preachers sent among them.

Alaska's wealth will justify a little legislation in her behalf.

During the past year mineral has been discovered in this Territory that will, I truly believe, revolutionize the Pacific Coast. Alaska fish are being looked after, and within a few years "Alaska canned salmon" will be exported to all parts of the world. Disbelievers may croak as much as they please, but these things are as inevitable as the rising of the sun.

Aside from all this is the Cassiar mines in British Columbia. This season has developed the fact that Cassiar is an extensive gold country that will last for years.

The year 1878 will bring near 3,000 men thither, perhaps more, all of whom must pass through Wrangell. I have seen 900 miners in this town at one time; a few days ago 400 were here awaiting ocean steamers.

Liquor smuggled into this port and that made here can be had at all times, and yet, in the absence of law, but few men have been drunk and no one seriously hurt.

But the present quietness can not always reign. Peace is not secure among 500 whites and 1,000 Indians with no authority except a deputy collector of customs, and he devoid of all legal power to act in case of trouble. The fact of no serious trouble having occurred, the outside world must not imagine quietness reins supreme at Wrangell. Far from it. I am daily beset by white men and by Indians, who come with all sorts of complaints, many of which are of a criminal nature. The aggrieved asks for justice. I can but advise. But advice will not always suffice. Justice is demanded, and unless something is done whereby the guilty can be tried and pun-

and trouble will occur, and that of a serious nature. Will not the present Congress do something for us? Or must we be compelled to organize ourselves into a committee of safety and make and execute our own laws? Time alone will tell.

I. C. DENNIS,
Deputy Collector of Customs.

CIVIL GOVERNMENT IN ALASKA.

We call the attention of our readers to the valuable and interesting letter from Mr. Isaac Dennis, deputy collector of customs at Fort Wrangell, Alaska. Mr. Dennis is well known in this town as a man of education and experience, and one well qualified to write on Alaskan affairs, from his long residence at Sitka and Fort Wrangell in an official capacity. He fully indorses the views contained in the official report of Commissioner Swan to the Commissioner of Indian Affairs, to which we called attention in our last issue.

Mr. Dennis's views relative to the great mineral wealth of Alaska are also true, and in proof of the report taken to San Francisco by Capt. John M. White, commander of the United States revenue steam cutter *Thomas Corwin*, relative to these deposits, and that the subject is beginning to excite the interest of the capitalists of San Francisco, we will state, on the authority of the British Colonist of November 18, that Flood & O'Brien, the bonanza kings, are represented as having taken an active interest in the development of the deposits in Alaska of gold, silver, iron, copper, and coal. Nor is the wealth now lying dormant in Alaska confined to the minerals. Her fisheries of cod, salmon, halibut, eulachon, and other varieties of edible fish, the great quantities of whale, sea elephant, porpoise, and other oil-producing inhabitants of the ocean, and the inexhaustible quantities of fur-bearing animals of both sea and land, are now only awaiting the magic touch of capital to be developed into prolific sources of wealth to those who have the energy to go and seek for them.

The remarks of Mr. Dennis respecting the Indians are correct and have been fully corroborated and proven by the reports of Commissioner Swan and Captains White and Selden, of the United States Revenue Marine; and if the policy as laid down in the commissioner's report can be adopted by our Government, and the same method of treatment of the Alaskan Indians be carried out as is now done in British Columbia, there will be no need of troops or of extending the farce of our present system of Indian agencies among them—a mistaken policy inaugurated in the days of George Washington and continued to the present day; a policy of treatment of the savages which the enlightened public of the United States have weighed in the balance of common sense, common humanity, and common charity and found lamentably wanting. Let Congress adopt the same system of governing the Indians of Alaska as is now so successfully carried out by Dr. John W. Powell, Indian commissioner for British Columbia, under instructions from the Dominion Government of Canada; and the various tribes and bands placed under charge of missionaries and teachers sent by the various religious denominations, as has for more than 30 years been so eminently productive of good at Metlakatla, British Columbia, under Mr. Duncan, of the Episcopal mission, and at Fort Simpson, British Columbia, under Mr. Crosby, of the Wesleyan Methodist mission. If this system is carried out and adopted by our Government we shall hear no more of the rascalities of Indian agents and no more Indian wars precipitated by the cupidity of Indian rings. What Alaska now needs is a civil government, as stated by Mr. Dennis and petitioned for by more than four hundred residents at Fort Wrangell. William King Lear, esq., whose name has accidentally been misspelled as one of the signers to the petition to Congress on our first page, is one of the wealthiest merchants in Alaska and one of the most prominent citizens of Wrangell. Mr. J. M. Vanderbilt was for a long time purser on the steamer *California*, and shows by his signature to that petition that he is well aware that the opening of Alaska to settlement will be more for the interest of steamboat owners than to have the country locked up as it has been by the presence of troops.

We commend the whole subject of the communication from Mr. Dennis and the petition of the citizens of Alaska to the careful consideration of our Delegate in Congress, and we ask the cooperation of the entire press of the Pacific Coast to aid in having Alaska opened to settlement and development by immediate action of the present Congress of the United States.

[From the Puget Sound Argus, January 25, 1878.]

NEWS FROM ALASKA.

WRANGELL, A. T., *January 10, 1878.*

EDITOR ARGUS: Items from this section being appreciated by the readers of your paper, I will record occurrences at this port during the past two months. Weather during the period dated has been remarkable; mild and rainy has been its principal

features. Sloshing about in the mud has caused us to become as webfooted a gonians. During the month of November we had but 3 nights of frost, 19 d rain, 6 cloudy days without rain, and 5 clear days.

December was introduced with a light frost, and during the month the weath 23 days of rain, 3 cloudy days without rain, 4 clear days, and 1 day of snow squ the depth of snow fall 1 inch. The lowest range of thermometer during Dec was 26°, highest 46°; average stage during the month, 37°. As further evide the mildness of our climate, permit me to state that in a window of my sanctu rosebush now in full bloom, and which has been ever since the 1st day of Dece Prevailing winds here during the past sixty days have been east and southeast, accounts for mildness of climate.

FROM CASSIAR.

Messrs. Sylvester and Humphreys arrived here from the gold field on Decem and report very mild weather at the mines and not much snow. They had difficulty in coming down the Stikine River on account of no ice, except a littl the banks. Several companies are at work tunneling on the first north f McDames Creek, and are doing well, taking out about 60 ounces per week. sions are scarce at the mines; butter and bacon there is none, and but little flo sugar. Miners going to these mines on the ice must take plenty of supplie them.

HOLIDAYS AT WRANGELL.

Christmas eve was ushered in by a grand raffle for Christmas cakes, after came a magnificent display of eatables and drinkables, which, being free everybody partook thereof and became happy. Hootzenoo and all other bra liquor flowed in abundance, and in honor to the residents of Wrangell be it sai on this occasion no white man created any disturbance. The only commotio by an Indian, and he, I regret to say, is a native of Washington Territory. A night approached our attention was attracted toward the Indian village. The and church going portion of the Indians had at this hour collected in number two hundred, and were on the march toward town, singing as they came. Ar at the residence of their teacher, Mrs. McFarland, they halted and serenaded singing several hymns. Their singing was admirable, considering the length o they have been under tuition. As I listened to these natives, who are seek become enlightened and benefited by the teaching of Christianity, I could n admire their seeming sincerity and reflect that they were showing a good exam many of us who claim to be their superiors in all things. Christmas dawne an easterly wind and rain, which somewhat dampened the spirits of our inhabi As the day advanced, however, the rain let up somewhat, and the people circ around and enjoyed each other's congratulations. The day passed off in p harmony; and, as evening approached, all those who love to tip the fantas were preparing for the masquerade ball. At 8 p. m. the doors were opened being supplied with a "complimentary," I wended forth to the hall and beheld twenty couples, of whom many were in gay and costly costume, being the hand of Indians. Leaving the scene of gayety, I strolled to the residence of Toyal chief of the Stikines. The church and school people were giving an entertai at his house and, having been given to understand that the presence of myse friends at the feast would be considered an honor greatly appreciated by all, to with friend Vanderbilt, I went there. Arrived at the place of attraction, a bu in size 30 by 40, we beheld congregated together about two hundred Indians, o young, of all sizes and all shades of color. The room was well lighted by candles, and a huge fire of dry wood in the center of the building. The wall gracefully decorated with evergreens, flags, and pictures. In the room wer large tables, on which were placed in abundance "Boston muck-a-muck" of description, and around which were seated youth and age doing justice to all them. As the tables were finished, a fresh lot would be seated, and before an was eaten grace would be said by Mrs. Dickinson. In a small room near the was an organ, at which was seated Mrs. Constantine (an Indian woman), who r the throng with several pieces of music. After all had eaten, Toyahatt enter us with tableaux, which were very laughable.

Could our wise heads and lawmakers at Washington and elsewhere have wit these things as above set forth, they would have become somewhat enlightened r ing the people here and their wants. Talk about heathens, barbarians, and tian missions in foreign lands! Here in Alaska is the point to turn your atte Ministers and Christians of these United States, here is material for you to with; here are people daily praying to God that aid will be sent them. Som has been done; a school has been established and a lady teacher sent here. B is not sufficient. More is asked; a man is required—one who is enthusiastic subject of reforming Indians from their old traditionary practices and habi

converting them to the better faith. Rev. Sheldon Jackson, while here last summer, assured us that a man would be sent to this mission as soon as a suitable one could be found; and the Indians are continually asking when he might be expected to arrive.

Senators and all in authority at Washington again we call upon you; aside from our own demands as citizens we urge upon you in behalf of these people to give deep thought and legislate wisely. Our Indians here are like the whites; they are divided in two sets—church and antichurch. The churchgoing Indians are opposed to the hootzenoo traffic, and are trying to stop its manufacture. The antichurch portion of the Indians are the whisky producers and consumers, and they frequently endeavor, when drunk, to sow discord and create a panic among the elect. Could the manufacture of liquor by the Indians be stopped the church here would soon have enrolled in members nearly every native. The manufacture of liquor in Alaska by Indians in my mind can be stopped but by one way, and that is by extending law over this country and punishing an Indian by fine and imprisonment when convicted of the traffic. When these Indians here lose their purse their hearts are touched, and imprisonment, as has been demonstrated, drives terror to their souls. The presence of troops and an occasional gunboat have no effect toward destroying the traffic in this country; they only foster the trade by noninterference. But give us gunboats and troops with law attached, or law without either, and see how long it will take to create reform. Law we must have, and each day's doings here calls out louder for the same. We must have law in order to protect the Indians from the doings of contemptible white men. There is no necessity of the whites here asking protection from the Indians, for they (the Indians) have, since the withdrawal of troops, shown themselves to be the most law abiding. All they ask is justice from the hands of all men, and nothing will be done by them that will create disturbance.

An outrage was committed here a fortnight ere Christmas by a colored scrub named Cato. He, having some difficulty with an Indian woman, and not content with tongue lashing her, set to and beat and kicked her most shamefully. At such treatment the Indians demanded justice; but none was to be had. The Indians were advised, however, that should the rascal attempt any further trouble they should take him in custody and administer on his bare back one hundred lashes. After the affair was all over several of our citizens talked of lynching him, and all that was required to carry out their notions was a little urging.

A GREAT SENSATION.

On December 29 this little town was greatly agitated over an occurrence as follows: The hootzenoo manufacturers, having by noninterference become bold and unprincipled, one John Petelin, a Russian and distiller of poison, sold to an Indian some of his manufacture, which caused a drunken row in the ranch and in which several Indians got seriously hurt. This drunken spree caused a few of the churchgoing people to fall from grace, and consequently the church party concluded it was time to make an example of somebody in order to convince white men that whisky selling by them to Indians would be no longer tolerated. A score of Indians therefore marched to the Russian's house, seized his "still" and liquor, and with him in custody started for the ranch. Arriving at Toy ah att's residence a council was held, and the decision was that the Russian should be tied to a post for one hour. This sentence was carried out, and the culprit's "still" and "mash tub" were placed alongside of him, that all passers-by might know why such punishment was inflicted. A portion of our white population (those who hesitate not in violating the laws of the country) set up an ignominious howl over the occurrence, claiming that if Indians were permitted and tolerated to perpetrate acts like this they would become emboldened and no white man would be safe. Many talked loudly of marching to the rescue of the Russian while under sentence, but, as is generally the case, talk was cheap, and none cared to act. Others, who are possessed with more brass than brains, commenced defining other men's duties, never once considering that their duties as law-abiding citizens demand that they shall discountenance and endeavor to suppress the liquor traffic in Alaska. And, again, there were a few of another class, of the "cut-and-shoot" stamp, who howled loudly of individual rights and self-protection, asserting what they would do should anyone attempt to enter their premises in search of liquor. Here was a scene for you, fellow-citizens of this our great Republic. Here, lawmakers of Washington, was a scene to be carefully considered by you. Here were three hundred white men greatly agitated over an act perpetrated by a few law-abiding Indians, the justness of whose doings we will consider hereafter. Here we were, all more or less excited, and many under the influence of liquor. Would it have been strange had anything serious occurred?

Taking advantage of the excitement, a call was made for the people to organize a select committee and empower the same to preserve the peace and administer justice at this town. The call accomplished nothing, and it was demonstrated that more

were in favor of creating discord and violating the laws of the land than to the contrary. Such being the case, the customs authorities got their backs up, quoted the laws, and proclaimed that they should commence a war of extermination on all whisky makers and lawbreakers.

A LITTLE COMMON SENSE.

There is reason in all things and justice in many. Therefore let us consider the following carefully:

Congress, by act approved March 3, 1873, made Alaska an Indian country, and section 2140, Revised Statutes, authorizes Indians to destroy all liquors found in an Indian country, except that which has been introduced legally.

Such being the case, the Indians had the right to enter the Russian's house, seize upon and destroy his "stills" and liquor. But had they the right to administer punishment on the man? Legally they had not. But common sense and justice ceded them the right on this occasion, and will again if it becomes necessary. If a man, be he white or black, so far degrades himself that he will, in defiance of law, manufacture rank poison and sell it to Indians in a country like this, thereby jeopardizing not only the lives of Indians but that of his own and hundreds of others who claim to be law-abiding citizens, there is, in my mind, no punishment too severe; and, in addition to being tied to a post, the Russian richly deserved a castigation with a "cat-o'-nine-tails." The churchgoing portion of the Indians here deserve credit for their efforts in trying to destroy the liquor traffic, and had our white citizens encouraged sobriety among the Indians and discountenanced the liquor traffic by white men there would have been less trouble among both races.

NEW YEAR.

The dawning of 1878 found many of our inhabitants noisy. Change of drinks operated badly. Hootzenoo would not unite harmoniously with other brands of liquor, and the consequences were ill temper. By night many gave evidence of a quarrelsome nature and became abusive—so much so that umbrage was taken and a general row occurred, in which revolvers were drawn. Luckily, however, friends interposed, and no shooting was done.

CROOKED WHISKY.

On the following day the customs officials, seeing that men were making fools of themselves and that trouble might arise at any moment, concluded to cut short the supply of hootzenoo and made a raid on illicit distillers. Searching the premises of several persons, nothing was found except at Mr. Clark's, and he said that he was compelled to make it and sell it or starve. He is therefore recommended to seek admittance in some State asylum where they give the inmates plenty of grub and in addition teach them a trade that will on discharge from the institution be more remunerative than making hootzenoo in Alaska. On January 3 the war of extermination was renewed, the officials heading for the Indian ranch. On Shoe Stacks Point hootzenoo stills and bowls of mash were found in nearly every house, and the destruction thereof was great.

Old Shoe Stacks, who professes to be a "hyas tyhee," who has letters of recommendation from nearly every military and naval officer that has been at Wrangell, had in his house two distills and mash enough to make forty gallons of whisky, and notwithstanding this fact he has always claimed to be a good Indian and opposed to the hootzenoo traffic. This same Shoe Stacks, without exception, is the worst Indian among the Stickines, and does more to prevent the success of the church and school than all the balance of the Indians combined. Could he be persuaded to partake of an overdose of hootzenoo and die from its effect but few would mourn his loss.

These whisky raids have accomplished something, and could punishment be inflicted on those found guilty, an end to the traffic would soon follow. Unless punishment is imposed there is no use destroying "stills," for if those who manufacture and sell hootzenoo can not make it in their dwellings they will make it in the woods on some adjacent island. The customs officers have, by advising and destroying "stills" and liquor, endeavored to prevent the manufacture.

But talking and destroying won't do it. It is about time an example be made of some one. If the department chooses not to punish, then let the flood gates be opened and the country will soon go to the devil, and there will be no need of any kind of government in Alaska, for all decent men will leave in disgust.

XXX.

[From the Port Townsend Weekly Argus, March 22, 1878.]

AFFAIRS IN ALASKA—A LETTER WHICH TALKS BUSINESS.

WRANGELL, ALASKA, *February 28, 1878.*

EDITOR ARGUS: Keep it before the people, shout it from the hilltops, and howl from the valleys the fact that the people of these United States are at last learning that Alaska is American territory; that outside of her fur interests she is rich in resources; that capital is now invested, and these resources will be developed. Proclaim also the fact that it is the imperative duty of the present Congress to legislate on Alaska, and frame laws whereby those who have invested money in this Territory may be protected in all the rights and privileges inherent as American citizens.

WRANGELL WEATHER

during the past two months has been very mild, with abundance of rain. The record for January shows 17 rainy days, 9 cloudy days, 3 clear days, and 2 days during which snow fell; depth of snow fall, one-fourth inch; lowest stage of thermometer during the month, 30°; highest, 49°; average stage, 40°. February record shows 14 days of rain, 3 cloudy days, 8 clear days, and 3 days of snow fall; depth of snow fall, 2 inches; lowest stage of thermometer, 30°; highest, 48°; average, 39°.

A STORM BREWING.

Affairs here of late have not been as they should be. The customs authorities still continue the war on whisky, causing a few white men to howl and many Indians to grumble. White men, by abuse, insults, and bad advice to Indians, and many of the Indians, by meanness and cowardly threats, imagine that they can frighten the officials, and thus prevent the further destruction of their loved hootzenoo.

We have a few contemptible renegades here who have endeavored to cause a conflict between the customs authorities and the Indians, and it is recorded that in case of trouble these same sneaks will get a taste of lead.

CHURCH AND SCHOOL.

The mission school still progresses in defiance of the combined influence of bad Indians, dance-house bummers, gamblers, and dead beats. In order to preserve good order among the flock, the church members elected a committee of five of their number to act as judges, and to decide on all offenses committed. Their principal modes of punishment are fines and tying to a post. The other day, a schoolboy having committed an offense, he was tied up, and some of his "tillicums," who do not belong to the church party, set up a howl and finally cut him loose. This act caused a commotion.

The judges, seeking advice as to what they should do, were told that when Christ was on earth, and His enemies struck him on one cheek, He turned the other, that they might strike that also; and that they, desiring to be His disciples, must imitate His example, and not notice such petty meanness. This advice somewhat amused them; however, they acknowledged it to be good doctrine and agreed to follow it.

"SHOE-STACKS" ON THE WARPATH.

This high-toned chief, being present at the meeting when the committee of five was elected, concluded to try a little bluff. He commenced by opposing the electing of a committee, saying that the Indians would not tolerate it and would not permit them to inflict any punishment. This was very cool, considering that he was an outsider and had nothing to do with church matters. Finding that his eloquence had no effect, and Mrs. McFarland being chairman of the meeting, he thought he would frighten her. Said he, "Woman, what did you come here for? You will ruin all these Indians and upset the whole town. You may think you are safe here, but I advise you to get your soldiers again." About the time he was getting warmed up nicely the customs' ty-hee stepped in, and the brave "Shoe-Stacks" hauled in his horns and completely went back on himself.

In order that the Indians may be properly watched and detected in the liquor traffic, the deputy collector has appointed several Indians to act as detectives and policemen.

This move made our friend "Shoe-Stacks" only angry. He tried every conceivable way to prevent the Indians from serving the collector, and demanded that they be removed from office. But, alas! his politics not being the same as the deputy's, no removals were made. Then, said the bold chief, "Suppose one of your policemen gets killed when he attempts to search canoes, what will you do?" "What will I do," said the deputy, somewhat riled; "who talks of killing? Do you come here and tell me that you will kill one of my policemen should he attempt to search

your premises? If you do, I will soon teach you what I will do." "No," sai "Shoe-Stacks," "I don't intend to kill any one, but I am afraid that strange Indian coming here might kill them." "Too thin, old man," said the deputy, "the gam of bluff won't win."

A CONTRAST.

Such is "Shoe-Stacks," "a good Indian and white men's friend." Now come Toy-a-att, another chief; what is his "tum tum"? This chief goes to church. H made a speech the other day to all the whites and Indians in town. Here is wha he said:

TOY-A-ATT'S SPEECH.

"MY BROTHERS AND FRIENDS: I come before you to-day to talk a little, and I hop that you will listen to what I say, and not laugh at me because I am an Indian. I am getting old and have not many summers yet to live on this earth. I want t speak a little of the past history of us Sitka Indians and of our present wants. In ages past, before white men came among us, the Indians of Alaska were barbarous, with brutish instincts. Tribal wars were continual, bloodshed and murder of daily occurrence, and superstition controlled our whole movements and our hearts. The white man's God we knew not of. Nature evinced to us that there was a first great cause; beyond that all was blank. Our god was created by us; that is, we selected animals and birds, the images of which we revered as gods.

"Natural instincts taught us to supply our wants from that which we beheld around us. If we wanted food, the waters gave us fish; and if we wanted raiment, the wild animals of the woods gave us skins, which we converted to use. Implements of warfare and tools to work with we constructed rudely from stone and wood. [Here the speaker showed specimens of stone, axes, and weapons of warfare.]

"These," said he, holding them up to view, "we used in the place of the saws, axes, hammers, guns, and knives of the present time. Fire we discovered by friction. [Here he demonstrated how they produced fire.]

"In the course of time a change came over the spirit of our dreams. We became aware of the fact that we were not the only beings in the shape of man that inhabited this earth. White men appeared before us on the surface of the great waters in large ships which we called canoes. Where they came from we knew not, but supposed that they dropped from the clouds. The ships' sails we took for wings, and concluded that, like the birds of the air, they could fly as well as swim. As time advanced, the white men who visited our country introduced among us everything that is produced by nature and the arts of man. They also told us of a God, a superior being, who created all things, even us, the Indians. They told us that this God was in the heavens above, and that all mankind were His children. These things were told us, but we could not understand them.

"At the present time we are not the same people that we were a hundred years ago. Contact and association with the white man has created a change in our habits and customs. We have seen and heard of the wonderful works of the white man His ingenuity and skill has produced steamships, railroads, telegraphs, and thousands of other things. His mind is far-reaching; whatever he desires he produces His wonderful sciences enable him to understand nature and her laws. Whatever she produces he improves upon and makes useful.

"Each day the white man becomes more perfect in the arts and sciences, whil the Indian is at a standstill. Why is this? Is it because the God you have told of is a white God, and that you, being of his color, have been favored by him?

"Why, brothers, look at our skin; we are dark, we are not of your color, hence you call us Indians. Is this the reason that we are ignorant; is this the cause our not knowing our Creator?

"My brothers, a change is coming. We have seen and heard of the wonderf things of this world, and we desire to understand what we see and what we hea We desire light. We want our eyes to become open. We have been in the dark t long, and we appeal to you, my brothers, to help us.

"But how can this be done? Listen to me. Although I have been a bad India I can see the right road and I desire to follow it. I have changed for the better. have done away with all Indian superstitious habits. I am in my old age becomi civilized. I have learned to know Jesus and I desire to know more of Him. desire education, in order that I may be able to read the Holy Bible.

"Look at Fort Simpson and at Metlakatla, British Columbia. See the Indi there. In years gone by they were the worst Indians on this coast, the most brut barbarous, and bloodthirsty. They were our sworn enemies and were continu at war with us. How are they now? Instead of our enemies, they are our frien They have become partially educated and civilized. They can understand w they see and what they hear; they can read and write, and are learning to beco Christians. These Indians, my brothers, at the places just spoken of, are Bri Indians, and it must have been the wish of the British Queen that her Indians sho be educated. We have been told that the British Government is a powerful

one a good and great work among us.
his is not sufficient. We want our chief at Washington to help us. We want
o use his influence towards having us a church built and in having a good
ent to us who will teach us to read the Bible and learn all about Jesus. And
my brothers, to you I appeal. Help us in our efforts to do right. If you don't
to come to our church, don't laugh and make fun of us because we sing and pray.
lany of you have Indian women living with you. I ask you to send them to
l and church, where they will learn to become good women. Don't, my
ers, let them go to the dance houses, for there they will learn to be bad and
to drink whisky.
ow, that I see you are getting tired of listening to me, I will finish by asking
gain to help us in trying to do right. If one of us should be led astray from
ight path, point out to us our error and assist us in trying to reform. If you
ll assist us in doing good and quit selling whisky, we will soon make Fort
gell a quiet place and the Stickeen Indians will become a happy people. I now
you all for your kind attention. Good-by."
h, my readers, is Toy-a-att's speech, verbatim, as near as I could report it.
do you think of it? Does it not speak volumes? Does it not convince you
ll the talk about the Indians of Alaska desiring missionaries sent among them
an idle rumor? This speech was made at his own request before hundreds of
e, and he desired that I should publish to the world what he said. I have
vored to do so, and I trust that the public will receive it as an earnest appeal
an Indian who I believe is truly sincere in his efforts to do good.
-a-att spoke in the Indian tongue, and his speech was repeated by Indian
rley" in "Chinook." Toy-a-att is not the only Indian here that desires to
e Christianized. Many others are as eager as he to become enlightened.
acquisition of this territory, had our Government pursued a different policy
xtended law and order over it, instead of placing it under the control of the
Department, to-day its resources would have been developed and its inhabitants
tter morally, physically, and intellectually. Military rule is a curse to any
ry in time of peace, and Alaska wants no more of it. It will be very curious,
d, if the people of Alaska can not be governed in the same manner as the
nion Government controls affairs in Cassiar, Fort Simpson, on the Skeena and
rivers, Queen Charlotte Island, and hundreds of other places in British
mbia.
the above-named places they have the same class of people to deal with that
ave here, and there it is the fear of the law that keeps things quiet, while here
le do as they please because they believe there is no law that can reach them.
lisgraceful affair occurred here on the night of February 16—an affair that puts
ame anything that has occurred at this place heretofore. A gang of bummers
rowdies have for the past three months been in the habit of prowling about town
idnight, making the most hideous noises imaginable, disturbing everybody, and
lting those who objected to their infernal acts.
the night above mentioned these hoodlums, being drunk and disorderly, started

unto our people in sending by sentence several bad characters beyond Alaska's no-bound limits never to return. We shall wait patiently a few months longer for Congress to extend law over this region, and if our appeals are not heeded, then we shall organize a vigilance committee and take the law in our own hands, let the consequences be what they may. A few determined men can become a power unto themselves by acting in unison and doing that which is for the common good.

Vigilance committees are not desirable in any country, but what other recourse have we should the present Congress refuse us aid? We must have law and order, this fact each day more fully demonstrates.

ALMOST BLOODSHED.

On February 19 nine canoes, loaded with Indians, arrived at this port from "Au[illegible]" The customs officials, desiring to search these canoes, sent one of their "special" (a Stikine Indian) to do that duty, and while he was performing the same a Tak[illegible] Indian came rushing out of his house with a musket and attempted to shoot "special." The gun, being an old "flintlock," would not go off; hence no damage was done. The customs officials then summoned the Takoo Indian to appear before them, and as a punishment for the attempt at murder ordered that he surrender canoe. This he refused to do until he was informed that unless he did he would tied to a post and whipped. Not relishing the idea of being disgraced in this manner, he gave up his canoe. Thereupon all the whisky bummers and thieving white men set up a howl and told the Indians that the customs officers had no right take the canoe; that it was an outrage on the Indians, and that they should go and take the canoe.

COURAGE TESTED.

The canoe being made fast alongside the custom-house, on February 25 the deputy collector, stepping from the door of his office, beheld fourteen stalwart Indians in the act of picking up the canoe and walking off with it. Calling to them to desist no attention was paid. Calling a second time and no attention, the deputy then reached for his "Springfield," went to the door, and said, "Drop that canoe or you are all dead men." At this threat they stopped and paid attention. On investigation it was found that a certain cowardly sneak of a white man had induced them to come and take the canoe, he telling the Indians that the collector would be afraid to prevent them. The deputy quietly informed them that all the Indians in Wrangell could not take the canoe unless they took it over his dead body, and that if they stole it during the night he would have it back or the Indians' scalps that dared to interfere.

A pretty mess this state of affairs. The customs officials propose to stop the liquor traffic among Indians at Wrangell, and in order to do this they must have aid. Several Stikine Indians have tendered their services and have been accepted, and he who objects to the searching of dwellings and canoes must abide by the consequences.

The customs officials did not take the steps they have taken until they were appealed to by all good citizens and peaceable Indians. The state of affairs was such that something had to be done to prevent serious trouble. The officials did not take the steps willingly, neither without carefully considering the consequences. Having assumed authority, they proposed to exercise it and have it obeyed. They can not be bluffed or frightened. Therefore it behooves Congress to do something, and that soon, that will tend to calm the sea of trouble.

BRIGHT PROSPECTS.

Alaska's darkest days, we trust, are past and that the future will be bright. At present indications are good, and we have every reason to believe that during the coming season the various resources of the Territory will be fully tested.

A cannery has been located at Clawock. The company, with a capital of $100,000, mean business. By the last trip of the *California* they landed at their place 120 tons of freight, among which was the necessary machinery for a steam sawmill and a large canning establishment; also 50 tons of tin. Within the coming three months the *California* will land at Clawock 200 tons of freight and all the men necessary to run the cannery business. Should the canning of salmon prove a success at Clawock, within the next few years canneries will be established all over the country of islands. Regarding salmon, permit me to say that while at Sitka a few days ago I saw a salmon that had been caught by the Indians in Sitka Bay. The salmon weighed 45 pounds. This fish was equal in flavor and richness to any salmon caught at any point on the Pacific Coast. Mr. Whitford, of Sitka, assured me that at the present time the Bay of Sitka is full of just such fish.

MINERS AND MINING.

The quartz mines at Sitka look well and encouraging. The Alaska Gold Mining Company are at work tunneling, and propose erecting a stamp mill at the mine the coming spring. Samuel Militich, of Sitka, has returned from San Francisco, having

his port a company has been formed who propose utilizing the myriads of g that infest these waters. The company have built them a vessel and a shop. The herring will be taken and converted to oil; also salted and dried. l parties at this place have also fitted out and gone dogfishing.

efore, with all the foregoing staring us in the face, is it not presumable that is all right; that her darkest days are over, and that a great change for the is fast approaching? Does it not brand as lies, base lies, all the newspaper agazine articles lately published in which Alaska is held up as a country of urces, no climate, and no people worthy of consideration outside of the "seal " and the "fur company?" There are none so blind as those who will not enators and Congressmen, drop the scales of ignorance and prejudice from yes and give us a little sensible legislation on Alaska, is the humble prayer of truly.

X.

[House Report No. 495, Fifty-fourth Congress, first session.]

REPORTS, MAPS, ETC., RELATING TO FUR SEALS, ETC., IN ALASKA.

the House of Representatives, February 24, 1896, Mr. Perkins, the Committee on Printing, submitted the following report (to pany House Con. Res. No. 19):

Committee on Printing, having had under consideration the reso- (House Con. Res. No. 19) authorizing the Secretary of the Treas- print the reports, correspondence, charts, maps, and other docu- now on file in the Treasury Department or other branches of overnment relating to the fur seal, salmon fisheries, and other rs pertaining to the Territory of Alaska, have had the same consideration and recommend that it be agreed to.

archives of the Treasury Department contain many valuable ts relating to the seal and other fisheries of Alaska and other ions connected with the Territory. It is desirable that these ts be printed, as their historical value will be great. A resolution, antially the same, passed the House March 2, 1895, but failed to the Senate because of the lateness of the session.

s not possible to give an accurate estimate as to the cost of this cation, but it is ascertained from the Treasury Department that

FROM THE REPORT IN THE TENTH CENSUS.

REPORT

ON THE

?ULATION, INDUSTRIES, AND RESOURCES OF ALASKA.

BY

IVAN PETROFF,
Special Agent.

1

[FROM THE REPORT IN THE TENTH CENSUS.]

REPORT

ON THE

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LETTER OF TRANSMITTAL.

WASHINGTON, D. C., *August 7, 1882.*

obedience to my instructions of April 20, 1880, under which cted to ascertain and report as far as possible the number of ts of each geographical division of the Alaskan district, with t of the occupations, modes of subsistence of the people, their ress, etc., indicating a proportional consumption of domestic ted articles; their religious and educational institutions, with ical information relative thereto which might be available, with such matters of economical and social importance as em to me to fall within the scope of my labors, I have the report that during the seasons of 1880 and 1881 I made an exploration of the greater part of Alaska and a careful ion of its people, collecting at the same time facts and staring upon their past and present condition and the volume n that region.

mense extent of country contained in the district made it e for me to visit every section in person, even in two sum- the population statistics of regions beyond my reach I have from the most reliable sources. The people of the Arctic n to Kings Island, in Bering Sea, were enumerated by Capt.

E. E. Smith, a whaling master of long experience, speaking the Innu tongue, who accompanied the United States steamer *Thomas Corwi* on her Arctic cruise in 1880 in the capacity of ice pilot. Most of h figures are from actual count.

For the enumeration of the coast people from Kings Island to tl mouth of the Kuskokvim River, and of the inhabitants of the Yuk delta, I am indebted to Mr. E. W. Nelson, United States Sign Service, who obtained his figures by actual count during a series sledge journeys through all that region. The same gentleman h also furnished me with much statistical information of great value.

The enumeration of the people of the Yukon River and its trib taries beyond the points reached by me during my journey of 18 was obtained, with the assistance of the traders, Messrs. Harp Mayo, and McQuestion, from chiefs and other prominent natives the various settlements during their annual visit to the coast.

At all places visited by me in person I succeeded in making actual count. Having obtained the official returns of the chur authorities within the area claimed by the various parishes and mi sions of the Russian Church, I compared these with my own enumer tion. I also compared the parish returns with the local registers ke by the "reader," or church representative, in each Christian villag The official returns of the Russian Church were furnished me by tl Rev. Zakhar Belkof, missionary of the Kvikhpak mission (Yuk River); Rev. Peter Shishkin, missionary of the Nushegak missi (Bristol Bay); Rev. Father Nikita, missionary of the Kenai missi (Cooks Inlet); Rev. Nikolai Rissef, of Kodiak parish; Rev. Moses Sal matof, of Belkovsky parish, and Rev. Innokenty Shaiashnikof, of Un laska parish. The returns of the Russian parish of Sitka, in sout eastern Alaska, were obtained from the Russian consistory of Sa Francisco, Cal., through the courtesy of Bishop Nestor, of the dioce of Alaska.

The enumeration of the people of southeastern Alaska, which regi I failed to visit in person, was made by Mr. Alexander Militich, wh was appointed a special agent of the Tenth Census by the Superi tendent upon the recommendation of the collector of customs in Sitk As far as I have been able to check Mr. Militich's figures of populatio by comparison with later counts made by the naval authorities at Sitk I have found them correct, and therefore feel justified in accepting h enumeration as a whole.

Of the commercial, industrial, and mining statistics of southeaste Alaska I was unable to obtain much satisfactory information, owing an apparent disinclination on the part of the majority of the busine men to furnish the same. My inquiries by letter were answered wi glowing statements of what the country would be in the near futu but as to the state of affairs at the time of writing my informants we silent.

For information concerning the educational and religious establis ments in southeastern Alaska under control of the Presbyterian Boa of Missions, I am indebted to Rev. Sheldon Jackson, D. D.

Throughout the west and north of Alaska I was assisted and aid in my researches, and in my progress through the country on land a water, by the agents and traders of the Alaska Commercial Compa and of the Western Fur and Trading Company, both of San Francis Cal. This assistance was of the greatest importance to me; in fac without it I could not have accomplished my exploration.

Through the kindness of Mr. E. W. Nelson (by permission of Ge

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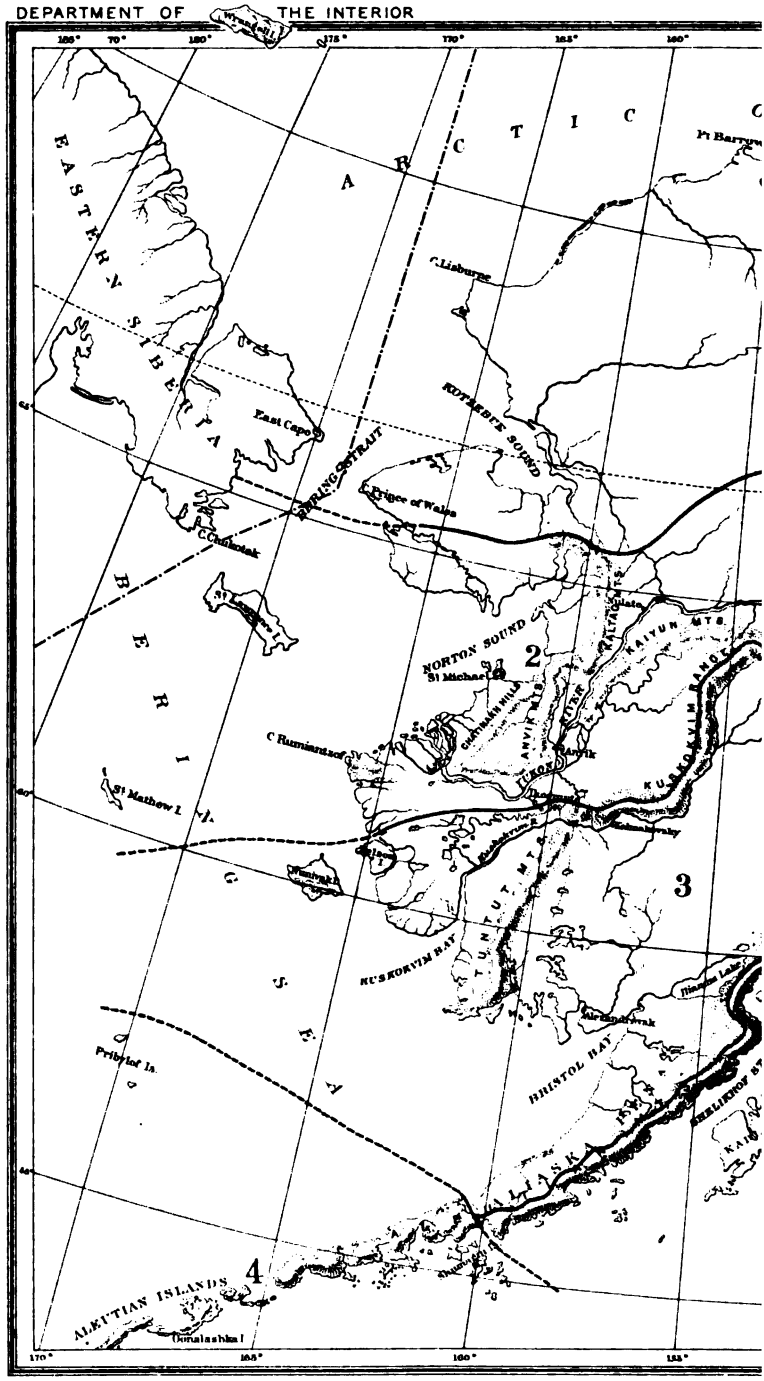
DEPARTMENT OF THE INTERIOR
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BERING SEA
East Cape
BERING STRAIT
Prince of Wales
C Lisburne
KOTZEBUE SOUND
C Chukotsk
St Lawrence I
NORTON SOUND
St Michael
C Rumiantsof
St Matthew I
Nunivak I
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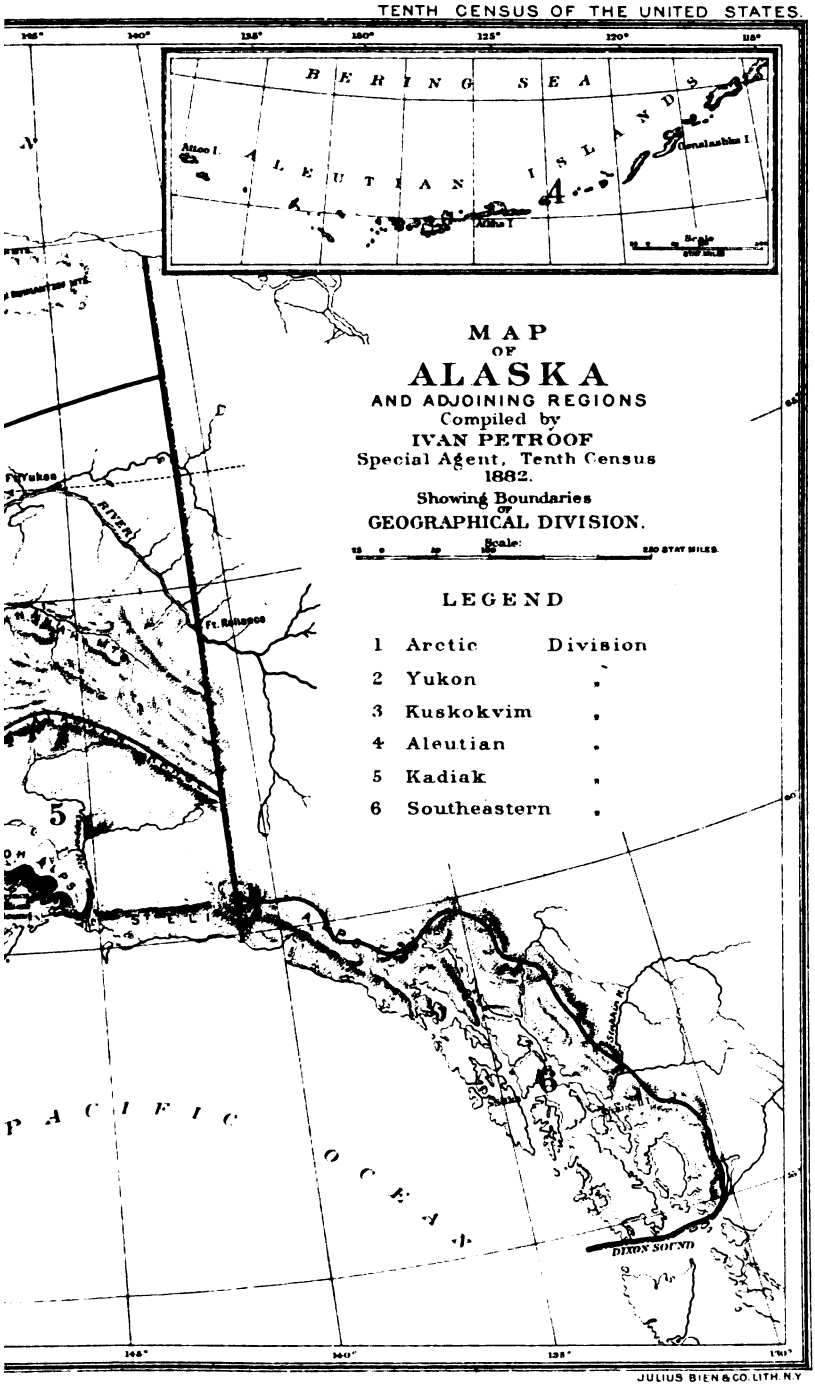

JULIUS BIEN & CO. LITH. N.Y.

B. Hazen, Chief Signal Officer, United States Army) and of lvin L. Hooper, United States Revenue Marine, I have obtained ıt geographical data, which, together with the notes of my own ions, enables me to compile a new map of Alaska. During the of this work I have also profited by the favors of the United oast and Geodetic Survey and the United States Hydrographic the shape of the latest geographical collections. All the ınd modern maps and charts (Russian, English, French, and n) accessible to me have been consulted, and the various author- y examined and compared, and I trust that the result will be a ılaska more accurate, both in contour and detail, than any here- ıblished. Mr. Henry Gannett, geographer of the Tenth Census, ly superintended the technical execution of the work.

ition to this general map, I have prepared special maps, show- listribution of native tribes, of timber, and of the various fur- animals of Alaska. On the latter point I have received the uable assistance from traders and others acquainted with the s of the country.

anging my work, the result of my own observations as well as ches in public and department libraries, archives, etc., I have most convenient to divide my report into the following heads: rief statistical review of Alaska in geographical divisions, les of population, statistics, etc.

eview of the fur trade, fisheries, mineral and agricultural s in the past and present.

geography and topography of Alaska.

historical sketch of Alaska from its discovery to the year 1880.

es on Alaskan ethnology.

ave the honor to be, very respectfully, your obedient servant,

IVAN PETROFF,
Special Agent.

CHARLES W. SEATON,
Superintendent of Census.

ER I.—STATISTICAL REVIEW BY GEOGRAPHICAL DIVISIONS.

e purposes of this report it has been found most convenient to laska into six geographical divisions, as follows:

Arctic division, containing 125,245 square miles, and compris- at portion of the North American continent between the one and forty-first meridian in the east and Cape Prince of Wales g Strait in the west, the Arctic Ocean in the north, and having uthern boundary a line indicating the watershed between the River system and the streams emptying into the Arctic and g upon the coast of Bering Sea just north of Port Clarence

Yukon division, containing 176,715 square miles, and compris alley of the Yukon River as far as it lies within our boundaries ributaries from the north and south. This division is bounded Arctic division in the north, the one hundred and forty-first in the east, and Bering Sea in the west. The southern bound- along a line indicating the watershed between the Yukon and okwim, Sushitna, and Copper rivers, and runs from the above- d meridian in the east to the coast of Bering Sea, in the vicinity

of Hazen Bay, in the west. The island of St. Lawrence, in Bering Sea, is included in this division.

3. The Kuskokwim division, containing 114,975 square miles, bounded on the north by the Yukon division, and comprising the valleys of the Kuskokwim, the Togiak, and the Nushagak rivers, and the intervening system of lakes. The eastern boundary of this division is a line running along the main Alaskan range of mountains from the divide between the Kuskokwim and Tennanah rivers down to the low, narrow isthmus dividing Moller Bay from Zakharof Bay, on the Alaska Peninsula. Bering Sea washes the whole west and south coasts of this division, which also includes Nunivak Island.

4. The Aleutian division, containing 14,610 square miles, and comprising the Alaska Peninsula westward of the isthmus between Moller and Zakharof bays and the whole chain of islands from the Shumagin group in the east to Attu in the west, including also the Pribilof or fur-seal islands.

5. The Kadiak division, containing 70,884 square miles, and comprising the south coast of the Alaska Peninsula down to Zakharof Bay, with the adjacent islands, the Kadiak group of islands, the islands and coasts of Cooks Inlet, the Kenai Peninsula, and Prince William Sound, with the rivers running into them. The main Alaskan range bounds this division in the north and west. Its eastern limit is the one hundred and forty-first meridian, which intersects the coast line in the vicinity of Mount St. Elias, while the south shores of the division are washed by that section of the North Pacific named the Gulf of Alaska.

6. The southeastern division, containing 28,980 square miles, and comprising the coast from Mount St. Elias in the north to Portland Canal, in latitude 54° 40′, in the south, together with the islands of the Alexander Archipelago between Cross Sound and Cape Fox. The eastern boundary of this division is the rather indefinite line established by the Anglo-Russian and Russian-American treaties of 1824 and 1825, respectively, following the summits of a chain of mountains supposed to run parallel with the coast at a distance not greater than 3 marine leagues from the sea between the head of Portland Canal and Mount St. Elias.

THE ARCTIC DIVISION.

Situated, as it is, almost entirely above the Artic circle, this division is known to us only from observations made on the seacoast. The vast interior, consisting probably of frozen moors and low ranges of hills, intersected here and there by shallow, sluggish streams, remains entirely unknown. We may presume that the reindeer find a refuge here from the constant persecution of the coast people or Arctic Eskimo on one side and of the Yukon River people on the other. Statements have been made by natives of the latter region to the effect that routes of travel are in existence connecting the river settlements with those on the Arctic, but nothing definite can be ascertained concerning them, with the exception of the general and well-established route of traffic between the Koyukuk, a northern tributary of the Yukon, and the settlements on Kotzebue Sound; and even this has never been traversed by a white man. Lieutenant Zagoskin, of the Russian navy, made the attempt nearly forty years ago, but failed, reaching merely the head waters of the Selawik River, and since his time the only reliable information concerning this route rests upon the statements of a few intelligent half-breed traders.

The only rivers known to emerge from this inland waste are the Col-

nually by many schooners and ships engaged in whaling, hunting, ading, and the inhabitants are better accustomed to white men he natives of any other regions in Alaska. Being possessed of commercial genius and energy, they do not confine themselves to ntercourse with the Caucasian race, but carry on an extensive with the natives of the Arctic coasts of Alaska and of Asia, ng the latter on the common trading grounds of Bering Strait ne Diomede Islands. In the intervals between this traffic the s living in the villages of Cape Prince of Wales and the Dio- are active hunters and whalers, and when the icy barriers of close up their deep-sea hunting grounds they confine them- to the inlets and streams, hunting seal, reindeer, and polar bears, apping the Arctic fox, whose snowy coat is rising in value from year.

n Point Hope to the eastward we find a series of villages, inhab- rincipally by reindeer hunters, who kill the seal during the summer only for the sake of its luscious blubber and meat. The skins reindeer are made up into garments, and in that shape find ready nong the whalers and the neighboring Eskimo tribes to the west- and southward. Along that dreary, low, ice-bound strip of coast en Point Hope and Point Barrow the scattered Innuit settlements epend upon reindeer, seal, and walrus for their subsistence, each se animals being hunted in its proper season.

n Point Barrow eastward to the boundary the settlements are few idely scattered, and the navigators who have made their way gh the dangerous channel between the ice and the shore have these people quite expert whalers, harpooning the huge cetaceans ir way to and from their breeding ground at the mouth of the nzie River.

only mineral of any value known to exist on the coast of this se Arctic division is coal, located in several easily accessible n the vicinity of Cape Lisburne, reported long ago by Kellett and English explorers, but more definitely located and utilized by in Hooper, of the United States Revenue Marine, in July, 1880. liscovery is of importance to the cruisers of the revenue marine

the Sandwich Islands, have carried such quantities of alcoholic liquor that the natives have acquired a craving for the same that can no longer be subdued, and this causes them to look for no other equivalent for their furs, oil, and ivory than the means of intoxication. At the same time they have become utterly reckless in their pursuit of fur-bearing and other animals, thinking only of satisfying their desire for the present, without the slightest thought of the future; and if this state of affairs be continued, the extermination of the people, consequent upon the exhaustion of their means of subsistence, can only be a question of time. The immoderate consumption of alcohol brings with it disease and war. Against the former all remedies are out of reach, and, far from using his influence in suppressing strife arising through his fault alone, the freebooter supplies the unfortunate Eskimo liberally with breech-loading arms and ammunition, thus making their wars more bloody and destructive.

No trace or shadow of Christianity and its teachings has found its way to these desolate regions, the dark night of shamanism, or sorcery, still hanging over the human mind. These people share with their Eastern kin a general belief in evil spirits and powers, against whom the shaman alone can afford protection by sacrifices and incantations. All sickness is ascribed to the direct action of evil spirits, and is treated accordingly. There can be no doubt of the sincere belief of many of these sorcerers in their own performances, but in every instance they make the exercise of their power, be it real or imaginary, a source of revenue and of influence among their people.

No philanthropic missionary has ever found his way to this icy coast, and unless some modern Hans Egede makes his appearance among them in the near future there will be no soil left in which to plant Christian seed.

It must be evident to any careful observer that there is no foundation in this division of Alaska upon which to build hopes for future development. As it is now it may remain for a few years at the most, but improvement seems now beyond the range of possibility.

As a foothold for Arctic explorers and for the scientific phalanx now steadily advancing toward the pole, this region may yet be utilized, especially since a beginning has been made in this direction by the establishment of a meteorological station at Point Barrow, under the auspices of the United States Government.

A brief account of the animal life of this region, based upon our latest authority—a naturalist accompanying the steamer *Thomas Corwin* on her Arctic cruise—is partially embodied in the report of Capt. C. L. Hooper.

Whales are found in all sections of the Arctic, and enter as soon as the ice breaks up and remain until compelled to leave by the closing up again of the sea. They are always found in the immediate vicinity of ice. The Eskimos assert that these marine mammals are most numerous after the departure of the whaling fleet in the autumn. The variety called the "bow-head" by hunters is the most common; the "California gray" and the fin-back whale are much more rare; in fact, they are seen only occasionally here and there. The white whale, or grampus (beluga), although confined to no particular section of the Arctic, is more numerous in the vicinity of the rivers, and especially those emptying into Kotzebue Sound, the female grampus with its young often ascending the rivers as far as tide water reaches, feeding upon small fish, and they may be observed on almost any clear day or night, the mother coming first, puffing and snorting, with an occasional display of her milk-white back as she guides her calf to the feeding ground.

›pard seal being the rarest among them.
ır bears are met with everywhere, and are generally found on the in its immediate vicinity, but instances have been recorded of ›eing seen at sea, 50 or 60 miles away from any land or fixed ice. grow to an enormous size, often weighing from 1,000 to 2,000 s. The skin of this animal is only valuable late in autumn and ; the winter; but only a few are secured during that season of the They fight the walrus constantly, and generally successfully, and er ready to turn upon the man who happens to inflict a wound not liately mortal.
ıdeer are said to be most numerous in that section of the coast between Point Barrow and Point Belcher, but they often change ıabitation, at times migrating in immense numbers to regions hun- of miles away, where their human pursuers do not dare to follow. abit of migration alone has thus far preserved the reindeer from ation by the ardent hunter.
se do not appear anywhere on the Arctic shore, but natives report ıs numerous in the far interior. Mountain sheep are also said to ıtiful on the lines of hills remote from the seashore, but only a ›rns of the animal, shaped into spoons and other utensils, can be on the seacoast; and if these animals are killed in this region at is done by natives located in the interior and not yet visited by men.
krats and squirrels are numerous all over the coast. Their skins ered for sale in large quantities, as the Eskimo does not make use m for his wearing apparel, but prefers the heavier coats of the er and seal for that purpose.
es are plentiful, especially the white or Arctic variety, and their are easily secured and meet with ready sale. In the depth of , when these foxes experience great difficulty in obtaining neces- ood, they fearlessly approach the dwellings of men and help elves to whatever comes within their reach, no matter what the ıal so long as it fills the stomach.
ıatic birds are very numerous along the coast and cliffs, and ds of geese and ducks breed and rear their young on the vast

It is impossible to obtain statistics of the provisions, manufactu goods, arms, and ammunition shipped to the Arctic coast of Ala and disposed of among the natives there, chiefly because the bulk this trade has fallen into the hands of illegitimate traders, who cl from American ports for the coast of Siberia, then touch at the Sa wich Islands to lay in a supply of spirituous liquors, and finally cru along the Alaskan coast, purchasing all the furs, fossils, and wal ivory in the hands of the Arctic Innuits with rum, breech-loading ar and ammunition. This traffic, though quite extensive in volume, at present altogether without the pale of official investigation, and o the continuous presence of one or two vessels of the revenue marin these waters could reduce the trade of the Arctic division to a leg mate basis.

During the summer of 1880 an enumeration of the Eskimo inhabit this division was made by Capt. E. E. Smith, then ice pilot of the re nue cutter *Thomas Corwin*. In nearly every instance this enumerat was made by actual count, and based upon this authority we pres the following list of settlements and their population:

Arctic division.

Settlements.	Location.	Eski
Kingigamute	Cape Prince of Wales, Bering Strait	
Inalit	East Diomede Island, Bering Strait	
Village opposite on mainland	Arctic Ocean	
Ta-apkuk	Cape Espenburg, Kotzebue Sound	
Kugalukmute	Kotzebue Sound	
Kongigamute	Buckland River, Kotzebue Sound	
Selawigamute	Selawick Lake, Kotzebue Sound	1
Kikiktagamute	Kotzebue Sound	2
Sheshalegamute	do	1
Tikizat	Arctic Ocean	
An-iyakh	do	
Cape Sepping	do	
Ip-Not	do	
Tikirak	do	2
Cape Dyer	do	
Cape Lisburne	do	
Point Lay	do	
Otok-kok	Icy Cape, Arctic Ocean	
Kolumatourok	Arctic Ocean	
Noona-agamute	do	
Ootkaiowik	do	
Pinoshuragin	do	
Ootiwakh	do	1
Refuge inlet	do	
Kokmullit	Point Barrow, Arctic Ocean	1
Colville river	Arctic Ocean	
IN THE INTERIOR.		
Koo-agamute villages	Kooak River	1
Noatagamute village	Inland River	4
Killaimute villages	Kok River	1
Total		3,0

The superficial area of the Arctic division of Alaska embraces 125,2 square miles, which, with a total population of 3,094, would give us t proportion of one native inhabitant to 40½ square miles, without a sing white man or woman. Fully nine-tenths of this vast area lies north the Arctic Circle.

THE YUKON DIVISION.

The second geographical division in the order of discussion is t largest in Alaska, comprising as it does the valley of the largest riv on the North American Continent, so far as this mighty stream flo

the level tundras, stretching away to the westward, until they
' merge with the shallow waters of Bering Sea. In the vicinity of
›rtage route between these two large rivers, where they approach
hin 30 or 40 miles of each other, the country is so low that a canal
s than half a mile in length would allow the waters of two vast
systems to mingle with each other.

life artery of all this vast division is, of course, the river from
it takes its name, which has served as the highway of nations
ribes for many centuries, long before the white man, with his
ved means of transportation, accomplished the feat, marvelous in
›yes, of traversing in one brief season the distance from its deltoid
ı to the Hudson Bay fort at the junction of the Yukon and the
pine rivers.

North American Indians of Athabaskan stock inhabiting the
of the Yukon and its tributaries east of the Anvik and Chageluk
had but a faint conception of the sea to the westward, and per-
a majority of the tribes were ignorant of its existence. On the
hand, the hardy Eskimo, living along the coast of Norton Sound,
wer Yukon River, and the Kuskokvim Delta, had advanced at an
day across the divide between the great river and the sea, follow-
› the course of the Oonalakleet River, striking the Yukon 40 or 50
south of Nulato. They settled the right bank of this river from
to its mouth and both banks west of the Chageluk, but were not
›d to hold peaceable possession, the Indians rallying from all
ions and driving the intruders back far down the river, where the
'aces of rolling hills are lost in the swampy tundras. From time
ıe the Eskimo advanced again, and traditional tales of bloody
s and years of war between the tribes have come down to us, but
gh all the varying fortunes of the contest the Eskimo succeeded
›ping the Indians from reaching the sea.

the present time the Indian or "Ingalit" tribes hold full sway
he river down to Paimute village, situated below the junction of
nvik River with the Yukon, and no Innuit (or Eskimo) ascends
ver beyond this point unaccompanied by white men, while no
it descends without the same protection.

ring the brief summer of this region the whole population flock
river banks, attracted by myriads of salmon crowding the waters

mountains and slopes on either side are inhabited by other tribes. Were he to make a brief excursion into the almost impenetrable forest and over the hills and mountains he would quickly perceive that along the river alone exist the conditions necessary to sustain life throughout the year. The small rivulets of the interior and the vast swampy plains covered with snow for seven or eight months of the year, are only visited by the trapper and hunter when the skins of the marten, mink, and muskrat are in their prime. Where the mountains are higher along the upper courses of the Yukon and Tennanah game is more abundant and the inhabitants are less dependent upon the river and its fish.

In the past the staple food during the winter was the meat of the reindeer, which animal was then abundant throughout the whole Yukon section, but the first introduction of breech-loading arms among these native tribes caused an indiscriminate slaughter and the almost total disappearance of this animal from the immediate vicinity of the river. At that time the moose was found only high up the river, and the mountain sheep was rarely even heard of. At present the reindeer is again gradually making its appearance here and there, but the moose, though hunted constantly and energetically, seems to be increasing in numbers, and has advanced down the river and spread all over the delta between the Yukon and the Kuskokvim.

American enterprise has already taken hold of the fur trade of this region to its full extent, and rival firms have lined the banks of the Yukon with trading stores from Bering Sea to the eastern boundary.

The shrill whistle of the steamboat is welcomed annually by thousands along the river banks at the breaking up of the ice, and it is echoed by the hills and mountains of the far interior where the Hudson Bay Company once reigned supreme.

Foxes of all shades, from the highly prized silver-gray and black to the fiery-red and the snow-white fox of the Arctic, furnish the staple fur of the Yukon region. The martens and the land otters come next in numbers, and the black and the brown bear constitute but an insignificant item of trade, while the mink of the tundras and the river delta, though exceedingly numerous, are next to valueless. The moose and deer skins are nearly all consumed by the natives themselves for clothing and bedding.

The total value of furs shipped from this vast region to the American and European markets does not probably exceed $75,000 per annum, and the profits of this traffic are divided by two incorporated California companies, with fifteen or twenty trading stations along the river. The fiercest competition has caused high prices of furs, and it frequently occurs that one or the other of the firms carries on its operations for a season at a loss.

No mineral deposits in paying quantities have yet been discovered as far as the Yukon flows within our boundaries. Prospectors have been at work for many years along its upper course, but only on the Tennanah have traces of gold been found in quantity sufficient to pay a laborer's wages during the brief summer season.

Rich as the river is in fish and the forest in game the supply does not seem to be equal to the demands of the native population. There is an annually recurring period of famine during the later months of winter and spring, and nearly all the money received from the traders is expended for flour, tea, and sugar, the shipment of these articles to the Yukon region increasing in quantity every year. Happily, nature affords better protection to fur-bearing animals than to game, and there does not appear to exist any danger of exterminating the former.

Much has been said and written by travelers who passed during a ief Arctic summer through the Yukon valley with its high temperure, rank vegetation, and brilliant flora (and by others who never w the river) of the great agricultural region here awaiting development in the near future. The real facts do not warrant any such expectation. The whole valley of the Yukon lies within a few degrees of he Arctic Circle: the soil, where it is level, is always swampy, and even he slopes of hills and mountains are never drained of their superabundant moisture. The heat of summer has no effect beyond an astonishingly rapid growth of native grasses and weeds and the bringing into life of dense clouds of mosquitoes all over the country.

There is no doubt that a few vegetables will come to maturity here during the summer, and traders, tired of an uninterrupted diet of animal food, have made many experiments in this line. In no single instance has there been a continued success in these ventures, heavy frosts at the end of July having, as it were, frequently nipped in the bud the growing hopes of the traders of reaping a scanty harvest of potatoes, turnips, and radishes. Even if the interior valleys of the Yukon were as well adapted to the production of cereals as are the Saskatchewan and the Red River valleys, which they are not, there would still be the difficulty of finding a market for produce from such an inaccessible region. Their only artery of trade would be, of course, the Yukon, and that is not open to navigation until the month of July, closing again at the end of September. No seagoing craft can enter the river at all, and transshipments of cargoes would be necessitated at some point on the coast away from its mouth.

For hundreds of miles from the sea the Yukon River flows through low, level tundras, or mossy morasses, resting upon a foundation of clay. The shifting current of the river eats away the shores on either side with astonishing rapidity; the dull thud of caving banks is constantly heard by the traveler, and whole reaches change their aspect entirely within a single season. Stepping upon the shore the explorer must jump from hummock to hummock or wade around from knee to waist deep. In many places the ice never disappears within a few inches of the surface, being protected from the rays of the sun by a nonconductive carpet of sphagnum. Wherever there is a slight elevation of ground in all this watery waste the wretched natives have located their villages, the dwellings consisting of excavations in the ground roofed over with mounds of sods. Here they fish during the summer and hunt the mink and moose in the winter. Millions of geese and ducks visit this region in the breeding season, but comparatively few of them fall victims to the Innuit hunter, who is but an indifferent shot, and powder is dear. The capture of a large species of seal called "maklak" is considered a great windfall by the hunter, and if three or four of them succeed in slaying a snow-white beluga, or grampus, the village at once becomes the scene of festivity and rejoicing. Milk and honey can not be said to flow at any time in this region, but oil does occasionally, lending a decided "luster" to the life of the Innuit and all his surroundings.

The observations of the temperature in the Yukon division have not been extensive, and of only two points in the interior have we a series of temperature readings. Nulato is a trading station and Indian village, situated at about the central point of the Yukon River Valley. Here the mean annual temperature, according to the observations of the Western Union Telegraph exploring parties, appears to be but 6° 8′ above zero. It must be remarked, however, that the warmest months

of the year are not included in this series of thermometrical readings. From Fort Yukon, at the junction of the Yukon and the Porcupine rivers, we have a complete set of readings for a whole year, from which we deduce an average for the summer temperature of 56°, and for the winter of −23°, with an annual mean of +16° 84′.

We insert the following table as published by the United States Coast Survey in the Pacific Coast Pilot of 1879:

Temperature observations at Nulato, Alaska.

Month.	1866 and 1867.						
	9 a. m.	1 p. m.	8 p. m.	Mean.	Max.	Min.	Range.
	°	°	°	°	°	°	°
January	−18.5	−16.3	−18.3	−17.7	+15	−49	64
February	−15.5	−10.4	−12.9	−12.9	25	−51	76
March	+11.5	+19.6	+13.5	+14.9	38	−40	78
April	19.2	+34.4	25.9	26.5	49	.....	49
May	40.9	56.1	42.3	46.4	74	+22	52
December	−11.2	− 8.0	−10.2	− 9.8	22	−56	78
Whole period	+ 3.4	+10.9	+ 5.8	+ 6.8	+74	−56	130

Temperature observations at Fort Yukon, Yukon River, Alaska.

Month.	Mean.	Max.	Min.	Range.
1869.	°	°	°	°
August	66.3	77	58	19

Month.	Daily mean.	Mean at 1 p. m.	Mean daily max.
1870.	°	°	°
January	−26.85	27.58	17
February	−26.44	−23.55	10
March	−11.16	− 0.94	28
April	12.66	19.43	52
May	41.24	48.81	70
June	53.49	62.00	.....
July	65.75	74.84	76
August	59.90	70.94	86
September	38.66	52 73	69
October	21.60	9.49	50
November	− 8.28	− 5.40	28
December	−18.43	− 5.39	22
Spring	14.60	22.71	70
Summer	56.73	69.28	86
Autumn	17 37	26.03	69
Winter	−23.80	−22.70	22
Year	14.58	23.89	86

From Mr. E. W. Nelson's report to the Chief Signal Officer on the meteorology of St. Michael and vicinity I extract the following:

During the past four years the first mush ice has begun to form in the bays from the 15th to the 18th of October, and the bays have been frozen over so as to bear a man from the 25th to the 28th of October, with the exception of the year 1878, when a strong wind took the ice out, and it did not freeze again until the 10th of November. Up to the 15th of October vessels could enter here without danger of meeting ice. In the spring much more uncertainty exists, as to a great extent the date of open water depends upon what the prevailing winds may be. Long-continued north winds, following a severe winter, as in 1880, may keep the ice barrier in until the 20th of June, and it has even remained until nearly the 1st of July, but these late dates are exceptional. As a rule, the ice will be thoroughly broken up and a strong vessel may enter Norton Sound through the ice by the 10th of June. (In 1875 a vessel reached this port May 25, but it was in the hands of an experienced ice pilot.) Vessels have reached here for the past four years between the 20th of June and the 1st of July.

These may be called safe dates for any vessel except in an unusual season, as during a large part of June fine weather prevails. There is usually but little risk in entering the ice at that season.

TEMPERATURE.

The range of the thermometer during the past seven years has been from 76° to —55° or 131°, though for the past four years the average yearly variation has been but 71.2°. The maximum variation of the past four years was in 1877 and 1878, when the highest extremes were, respectively, 75° and —50°, and 73° and —52°, amounting to a range of 125°. The smallest range in 1879 was 100°, from 68° to —32°; the average of the mean monthly temperature, made up from the daily average of three observations for the years 1877, 1878, 1879, and 1880, is as follows:

	Degrees.		Degrees.
January	— 5.0	July	53.1
February	— 6.5	August	52.1
March	9.5	September	43.3
April	22.1	October	28.0
May	32.8	November	3.3
June	45.2	December	8.9

The minimum averages of any single month are —23.7° for February, 1877, and —19.8° for January, 1880. The highest monthly means are 54.5° and 53.4°, in July and August, 1877, respectively. The mean annual temperature for the four years is 25.5°. The highest mean for one year is 26.8°, in 1879, and the lowest 23.9°, in 1880. January and February rank as the two coldest months, and July and August are the warmest.

TIDES.

The ordinary tides are small and give a rise and fall of only about 2 or 3 feet, but the winds from either north or south produce a striking variation. A long-continued and heavy gale from the south raises the water of Norton Sound at least 10 feet above ordinary tide mark and overflows large stretches of the low coast to the southward. Some of the heaviest of these gales occur during the winter, and frequently the sea, covered with heavy ice, sweeps over the low coast lands between the Yukon and the Kuskokwim rivers for miles, and whole native villages have been thus destroyed with many of their inhabitants within the last few years. As the tide falls, the ice, 3 or 4 feet thick, is left stranded on the lowland. A light south wind is sufficient to raise the tide from a few inches to several feet above the ordinary extent. North winds affect the tides in proportion to their strength exactly in the inverse ratio of the south winds. When long-continued and strong gales from this direction occur (most frequently in autumn), the shallow bays are laid bare, long reefs are exposed, and a general fall of the water of about 8 feet occurs. It is to the high tides and south winds of spring or early summer that this region is indebted for the driftwood which, emerging from the Yukon, is cast upon the beach, and furnishes the only fuel and building material here.

VEGETATION.

The whole coast in this part of the country is bare of any kind of timber, and a few patches of scraggy alder on sheltered southern hillslopes, with the Arctic willows creeping over mossy ground, are almost the only bushes to be found. The ground is covered with a soft layer of decaying vegetable matter and mosses, which hold water like a sponge. In addition, a varied and hardy sub-Arctic flora manages to thrive everywhere except on the northern slopes of the hilltops, where only lichens grow or total sterility prevails. As soon as the warm days begin the hardier plants start up and by the first of June shade the country with green in sunny spots, making a pleasant contrast to the gray and russet elsewhere; a few days later, and the southern hillslopes are thickly dotted with flowers.

GARDENING.

Repeated attempts to raise garden vegetables have been made, but with poor success, as turnips, radishes, and lettuce appear to be the only vegetables from which any adequate return may be expected, and even in these cases the trouble far exceeds the reward.

ATMOSPHERIC PHENOMENA.

For the four years preceding April 30, 1880, the average proportion of cloudiness during the year has been as follows:

The average number of totally cloudy days	182.2
The average number of partially cloudy and fair days	131.5
The average number of clear days	50.5

The average number of days during which rain or snow fell at St. Michael during the last four years was:

January	9.0	July	14.2
February	5.7	August	19.5
March	8.2	September	17.7
April	16.2	October	16.0
May	11.2	November	10.0
June	9.8	December	9.7

Or an annual average of 147.5 days on which rain or snow fell. The average annual precipitation equals 18.36 inches.

The number of days on which rain or snow fell appears very disproportionate, but this is readily explained by the character of the precipitation. In but a single instance during four years have I seen a hard downpour of rain, such as is common in lower latitudes, but either fine showers of short duration or long misty rains, which at times fall for a day or two, leaving scarcely a measurable quantity of moisture in the rain gauge, though every exposed object becomes saturated like a water-soaked sponge. The snow usually bears the same character and falls in fine amorphous flakes, rarely showing perfect crystalline forms and as rarely falling in large flakes.

ELECTRICAL PHENOMENA.

Thunder showers are said to be quite common in some parts of the Yukon River Valley during the summer, but in the vicinity of St. Michael flashes of lightning, accompanied by thunder, have been observed on two occasions during the four years. Probably the low temperature and the high relative humidity combine to lessen such displays here. During the coldest weather in winter, nearly always after a snowfall, the air is in a highly charged condition, and at such times a passing stroke upon any loose fur causes the hairs to stand up, so fully charged that by presenting the finger to a single hairtip the snap of a spark may be heard 3 feet away; and in the dark a train of sparks follows the hand in stroking any fur.

MIRAGES.

During the fine weather, from the last of February until the latter part of July, most of the clear days are accompanied by more or less mirage, which is generally strongest on cold, clear days in March and in fine, warm days in May and June. The coast hills and capes, 30 to 75 miles away, are lifted up and contorted into the most fantastic shapes, which constantly assume new forms with protean rapidity, until the whole landscape appears but a form of air, the least change in one's altitude producing a disproportionate change in the scene. I have seen a tall, pinnacled hill, apparently hundreds of feet high, melt away and totally disappear under the horizon by descending about 15 feet from my first point of view, and the changes in outline are equally abrupt and surprising. During the entire year upon pleasant days the air is constantly vibrating more or less appreciably to the eye, but during the clear, intensely cold days in the latter part of winter these vibrations are so energetic that everything on or near the surface of the ground becomes at a distance of about 2 miles blended into an indistinct, tremulous blur.

CHANGE OF SEASON.

As in most other places under high latitudes, there is no long gradation from season to season, but instead we have two well-marked periods—a long winter of about seven months, extending from October until well into May, and five months of summer. The winter is by far the best, as there are long periods of beautifully clear days, which are welcomed in spite of the usually accompanying intense cold. The summer is rendered very disagreeable by a large number of cold, misty rains, and the low overhanging stratum, which appears to shut down all about like a leaden covering. As noted in the first part, no slush ice forms in the bays with the water at a temperature of 30.5°; and, in addition, the whole surface of the sea, if calm, appears covered with large oily-looking patches, which slowly increase in size, and as the temperature reaches 30° the slush begins to unite. In the oily-appearing spots the water, on close examination, has a milky shade, and is seen to be full of extremely fragile laminæ of ice floating with their edges vertical. These plates, when ground and broken, form the slush ice along the shore. Many of these plates are an inch or more in diameter, but are so fragile that a breath dissolves them. Ice forming in this way is always rough, but a rapid and extended fall of temperature directly after the oily spots appear sometimes throws a thin sheet of glassy ice over the sea for many miles in a single day.

MIGRATION OF BIRDS.

The earliest arrival in spring is generally a solitary goose or two. In the last days of April, and from then on until the 1st of June, birds continue to arrive, the main migration falling between the 15th and the 25th of May. The common barn swallow comes May 20; the waterfowl, geese, and ducks begin nesting on the last of May. The autumn migration of birds passing southward begins on the last of July, and only a few of the hardier waterfowl remain at the end of September.

FISH.

The arrival of fish depends largely upon the date of open water along the shore. Herring generally arrive from the 5th to the 20th of June. The delicious king salmon come from the 15th to the 25th of the month, and the inferior species of salmon in July and the month of August.

In 1868 Mr. William H. Dall made a report upon the agricultural resources of Alaska, which was published by the Commissioner of Agriculture. From this official document I make the following extract:

The character of the country in the vicinity of the Yukon River varies from rolling and somewhat rocky hills to broad and marshy plains, extending for miles on either side of the river. The underlying rocks in great part are Azoic, being conglomerate, syenite, and quartzite. The south shore of Norton Sound and portions of the Kadiak Peninsula are basalt and lava. There is on the northeast shore of Norton Sound an abundance of sandstones and clay beds containing lignite. Sandstone is also abundant on the Yukon, alternating with the Azoic rocks. The superincumbent soil differs in different places. In some localities it is clayey, and in such situations is quite frequently covered with sphagnum, which always impoverishes the soil immediately beneath it. In others it is light and sandy, and over a large extent of country it is the richest alluvial, composed of very fine sand, mud, and vegetable matter brought down by the river and forming deposits of indefinite depth. * * * The soil is usually frozen at a depth of 3 or 4 feet in ordinary situations. In colder ones it remains icy to within 18 inches of the surface. This layer of frozen soil is 6 or 8 feet thick; below that depth the soil is destitute of ice, except in very unusual situations.

The mean temperature of the Yukon region, as given by Mr. Dall with reference to the point of St. Michael, in latitude 63° 28′; the mission of the Greek Church on the Yukon River, in latitude 61° 47′; Nulato, on the Yukon River, in latitude 64° 40′, and Fort Yukon, on the same river, in latitude 67° 10′, is exhibited in the following table:

	St. Michael.	Greek Church mission.	Nulato.	Fort Yukon.
	°	°	°	°
Mean for spring	+29.3	+19.62	+29.3	+14.22
Mean for summer	+56.0	+59.32	+60.0	+59.67
Mean for autumn	+26.3	+36.05	+36.0	+17.37
Mean for winter	+ 8.6	+ 0.95	−14.0	−23.80
Mean for year	+29.3	+26.48	+27.8	+16.92

The temperature as exhibited in the above table would not seem to afford much encouragement to the agricultural immigrant, even without reference to the existence of frozen soil throughout the year within a short distance of the surface, as mentioned above.

Incomplete and unsatisfactory as our information is on this subject, the data given would appear to be conclusive as to the adaptability of the Yukon River Valley for agricultural pursuits. From various points on the river traders report a temperature of from 50° to 67° below zero, a common occurrence during the winter; and, though travelers in and residents of this region complain of oppressive heat during the summer, severe frosts frequently occur in the months of June and August, and

one instance is recorded of a heavy frost at Nuklukaiet on the 27th of July, which destroyed a promising vegetable garden planted there in the summer of 1879.

Two Roman Catholic missionaries, Bishop Charles Seghers, S. J., and Father Mondard, his assistant, passed the winter of 1877–78 in the central Yukon region. They suffered much from severe cold during the winter, and when at last the ice disappeared and the snow melted away from forest and from tundra, the contrast between winter and summer was so great that the pious missionaries were filled with delight, and warming their bodies, chilled through the eight months of constant cold, in the genial rays of the sun of July, they grew enthusiastic over the warm climate of the Yukon and its "fertile valley" that might support millions of agriculturists. These good missionaries evidently had no experience in farming or husbandry, and had never attempted to sink a spade into the matted, elastic covering of the Yukon tundra. The plague of the Arctic, the mosquito, alone would drive any but the most energetic and desperate settlers from the country.

In the apparent absence of precious minerals in paying quantities we must base our hopes for the future of the Yukon region upon its furs and fish alone.

The dreary coast line of this division, washed by the shallow waters of Bering Sea, is inhabited by a hardy race of seal and walrus hunters, who have planted their villages at every point where it is possible for a few families to eke out a living. A few points on this coast line from Cape Prince of Wales to Cape Rumiantzof require special mention. Port Clarence, just south of Cape Prince of Wales, offers fine harbor accommodations, and three or four Innuit villages are located here. Kings Island, called "Oukivok" by the natives, is a small, high island about 30 miles southeast from the Diomede Islands. This island is about 700 feet in height, with almost perpendicular cliffs and deep water on all sides; is composed of basalt, is exceedingly rugged in outline, and is barren of tree or shrub. The most remarkable feature of the island is the village, composed of winter houses, about 40 in number, excavated into the side of the cliffs, and built on a steep declivity, which rises from the sea at an angle of about 45°. On small projections from the face of the cliff the inhabitants erect their summer houses, consisting of rude tents of walrus and seal hide. The natives of this Arctic Gibraltar live almost entirely by walrus and seal hunting, the skins of these animals being manufactured into roofs of houses, coverings for their kaiaks, clothing, straps, lines, and other articles. The flesh of both the walrus and the seal is their chief article of food, and the ivory of the former is sold to passing traders for rum, breech-loading arms, ammunition, tobacco, and a few trifles. The skins of the seal ("lavtak") form an article of trade with the natives of the mainland, America, and Asia. This isolated community seems to be very prosperous.

Proceeding down the coast and entering the vast estuary of Norton Sound we find on its northern coast a deep indentation, Golovin Sound. Here indications of lead and silver have been found, and the ubiquitous prospector has already visited the spot with his pick and shovel. The results of the enterprise, however, have not thus far been made definitely known.

The most important locality, however, on this coast is the trading post of St. Michael, where rival firms have established their depots for the Yukon River and Arctic trade. At this place each firm has its managing agent for the district, who is supplied once a year with a cargo of goods from San Francisco. The station keepers from the interior come down

to the coast at the end of June or the 1st of July, and each receives his allotment of goods to take back with him in sailboats and bidars during the few months when navigation on the river is not impeded by ice. The vessels supplying this depot can seldom approach the anchorage of St. Michael before the end of June on account of large bodies of drifting ice that beset the waters of Norton Sound and the straits between St. Lawrence Island and the Yukon Delta.

In the description of this division we must include the island of St. Lawrence. This island originally had a population of about 1,000, but during the winter of 1878, on account of the failure to lay in supplies during the hunting season, a period of general starvation occurred, which caused the death of at least 400 men, women and children, principally the latter two classes. There are several villages on the island inhabited by a tribe of Asiatic or western Eskimo. They are tall, straight, and muscular, are generally good looking, and subsist principally upon the walrus and the seal, generally taking only as much as is actually needed for their immediate wants, without providing for the future. They make houses, boats, clothing, etc., of the skins of the walrus, and sell whalebone and ivory to traders for rum and breech-loading arms. Living directly in the track of vessels bound to the Arctic for the purpose of whaling and trading, this situation has been a curse to them; for as long as the rum lasts they do nothing but drink and fight among themselves, and whenever they collect a few furs, instead of exchanging them for provisions or clothing, they refuse to sell them for anything but whisky, breech-loading arms, and ammunition.

There is a chapel at St. Michael, but the headquarters of the Greek Catholic Church, which has the only established mission in this division, is at Ikogmute, on the Yukon River, just opposite the point where the Kuskokvim portage comes over. Here there is a church with several church buildings under control of an ordained priest, whose influence over these people is very small. On paper he lays claim to having 3,000 parishioners, but I was unable at any settlement to recognize his title, even approximately. The worthy priest abounds in faith, however, and, in addition to his first-cited claim, also reports that he holds 600 more "nearly persuaded," as if it were a mere question of time to gather them in finally.

The people of the United States will not be quick to take to the idea that the volume of water in an Alaskan river is greater than that discharged by the mighty Mississippi; but it is entirely within the bounds of honest statement to say that the Yukon River, the vast deltoid mouth of which opens into Norton Sound of Bering Sea, discharges every hour one-third more water than the "Father of Waters." There is room for some very important measurements to be made in this connection, which I hope will soon be made. We know the number of cubic feet of water which the Mississippi rolls by New Orleans every day, but we do not possess authority concerning the volumes of the flood discharged by the Yukon. Entering the mouth, or rather any one of the mouths, of this large river, we are impressed first by the exceeding shallowness of the sea 50 miles out from it, varying in depth from 2 to 3 fathoms; and second, by the mournful, desolate appearance of the country itself, which is scarcely above the level of the tide, and which is covered with a monotonous cloak of scrubby willows and rank grasses. The banks, wherever they are lifted above the reddish current, are continually undermined and washed away by the flood, and so sudden and precipitate are these landslides at times that traders and

natives have barely escaped with their lives. For 100 miles up through an intricate labyrinth of tides, blind and misleading channels, sloughs and swamps we pass through the same dreary, desolate region, until the higher ground is first reached at Kusilvak, and until the bluffs at Andreievsky and at Chatinakh give evidence of the fact that all the land in Alaska is not under water. It is watered, however, here, there, and everywhere, and impresses one with the idea of a vast inland sea, which impression holds good even as far up the river as 700 or 800 miles, where there are many points, even far in the interior, at which this river spans a breadth of 20 miles from shore to shore. As we advance toward its source we are not surprised, when we view the character of the country through which it rolls, at the vast quantity of water in its channel. It would seem as though the land itself drained by the river on either side within Alaska were a sponge, into which all rain and moisture from the heavens and melting snow are absorbed, never finding their release by evaporation, but conserved to drain, by myriads and myriads of rivulets, the great watery highway of the Yukon. I noticed a striking evidence of the peculiar nonconductive properties of the tundra mosses, or swale, last summer in passing through many of the thousand and one lakes and lakelets peculiar to that region, where the ice had bound up the moss and overhanging water growth at the edges of the lakes. In the breaking up and thawing out of summer that ice failed to melt, and the renewed growth of the season of vegetation, reaching out in turn from this icy border, will again prevent thawing, and so on until shallow pools and flats are changed into fixed masses of ice hidden from view.

The borders of the bed of this river alternate from side to side, with flats here and low hills there, the river shifting from one to the other. The hills above the mission as well as the rolling uplands are all timbered, while the flats are covered with rank grasses and willow thickets. This river is bound by ice in October and is not released until the sun of June exerts its power. A very remarkable occurrence in connection with this annual event took place in the summer of 1880, by which a famine ensued at the mouth of the Yukon, and the people thereof were obliged to repair for food to neighboring settlements far to the northward or on the Kuskokvim. The ice came down the Yukon in such masses and in such profusion that it grounded in the deltoid mouth in the month of July, so as to form a barrier against the running of the salmon.

A list of settlements and stations in the Yukon division with their respective population is here appended, as follows:

Yukon division.

Settlements.	Location.	Total.	White.	Creole.	Athabaskan.	Eskimo.
Cape York	Bering Sea	24				24
Siniogamute	Port Clarance	36				36
Kaviazagamute	Lake Imorook	200				200
Nook	Cape Douglas, Bering Sea	36				36
Ookivagamute	Kings Island, Bering Sea	100				100
Aziak	Sledge Island, Bering Sea	50				50
Small village opposite on mainland.	Bering Sea	10				10
Oo-innakhtagowik	North coast of Norton Sound	10				10
Ayacheruk	do	60				60
Chitnashuak	do	20				20
Imokhtagokshuk	do	30				30
Okpiktolik	do	12				12
Tup-ka-ak	do	15				15

YUKON TUNDRA IN SUMMER.

Yukon division—Continued.

Settlements.	Location.	Total.	White.	Creole.	Athabaskan.	Eskimo.
Chiookak	North coast of Norton Sound	15				15
Ignituk	do	100				100
Atnuk	do	20				20
Nubviakhchugaluk	do	30				30
Kvikh	do	30				30
Ogowinagak	do	20				20
Scattered villages	Head of Norton Bay	20				20
Oonakhtolik	East coast of Norton Sound	15				15
Shaktolik	do	60				60
Tup-hamikva	do	10				10
Oomlakleet	do	100				100
Igawik	do	8				8
Kegokhtowik	do	20				20
Ketchumville	do	5	3	2		
St. Michael and Tachik village.	do	109	4	5		100
Pikmiktalik	do	10				10
Pastoliakh	do	80				80
Kotlik	Yukon Delta	8				8
Fetkina	do	30				30
Village (name unknown)	do	6				6
Ingechuk	do	8				8
Kashutuk	do	18				18
Chefokhlagamute, first	do	15				15
Chefokhlagamute, second	do	5				5
Chefokhlagamute, third	do	6				6
Igiagagamute	do	10				10
Askinuk	do	175				175
Kashunok	do	125				125
Kaisligamute	do	100				100
Ookagamute	do	25				25
Oonakagamute	do	20				20
Village (name unknown)	do	15				15
Kwigathlogamute	do	30				30
Nunochogamute	do	40				40
Nauvogalokhlagamute	do	100				100
Villages on Big Lake region	do	166				166
Coast between Pastoliakh and Cape Rumiantzof.	do	300				300
Komarof's Odinotchka	Yukon River	13		1		12
Alexeief's Odinotchka	do	16		1		15
Eliseief's Barabara	do	20				20
Chatinakh	do	40				40
Andreievsky Rédoute	do	14	1	1		12
Starikvikhpak	do	90				90
Razboinik	do	151				151
Ooglovia	do	102				102
Ingahamé	do	63				63
Single house	do	10				10
Staraie Selenie	do	55				55
Ikogmute, mission	do	148		5		143
John's station	do	37	1	1		35
Rybnia	do	40				40
Pogoreshapka	do	121				121
Single house	do	9				9
Paimute	do	89				89
Askhomute	do	30				30
Ignokhatskamute	do	175				175
Makeymute	do	121				121
Anvik station and village	do	95	1		94	
Single house	do	20			20	
Do	do	12			12	
Do	do	15			15	
Tanakhotkhaiak	do	52			52	
Single house	do	15			15	
Chageluk settlements	Chageluk Slough and Innok River.	150			150	
Khatnotoutze	Yukon River	115			115	
Kaiakak	do	124			124	
Kaltag	do	45			45	
Nulato, station and village	do	168	2	3	163	
Koyukuk settlements	Koyukuk River	150			150	
Terentief's station	Yukon River	15			15	
Big Mountain	do	100			100	
Single house	do	10			10	
Sakatalsa	do	25			25	
Yukokakat	do	6			6	
Melozikakat	do	30			30	
Mentokakat	do	20			20	
Soonkakat	do	12			12	
Medvednaia	do	15			15	

Yukon division——Continued.

Settlements.	Location.	Total.	White.	Creole.	Athabaskan.	Eskimo.
Noyokakat	Yukon River	107	1		106	
Kozma's	do	11			11	
Nuklukaiet	do	29	2		27	
Rampart village	do	110			110	
Fort Yukon	do	109	2		107	
Fort Reliance	do	83	1		82	
Gems de Large	do	120			120	
Fetoutlin (David's people)	do	106			106	
Tennanah villages	Tennanah River	700			700	
St. Lawrence Island	Bering Sea	500				500
Total		6,870	18	19	2,557	4,276

The Russian mission on the Yukon River claimed in the year 1880 that 2,252 of the natives were professors of Christianity, but personal observations lead me to believe that this estimate is exaggerated, comprising as it does quite a number of individuals in distant settlements to which this zealous missionary can show no title beyond a wholesale sprinkling of the village during a hurried visit. In 1880 there was no school in existence within the jurisdiction of this mission, but steps were being taken by the bishop for the location of an educational establishment at Ikogmute.

The trade of the Yukon division has been thus far confined altogether to the barter with the natives for furs, seal oil, and some walrus ivory along the coast. The importations of goods and provisions in payment of these native productions are quite large, amounting in the year 1880 to 150,000 pounds of flour, 100 chests of tea of 52 pounds each, 150 half barrels of brown sugar, and 50 half barrels of white sugar. The consumption of flour alone foots up 25 pounds for each man, woman, and child in the district, and the demand for this article is increasing annually. The dry goods, hardware, etc., imported, together with this large quantity of provisions, represented in 1880 a value of nearly $20,000.

The furs obtained in exchange for these provisions numbered 27,356, of all kinds, divided as follows:

Wolf	32	Marten	2,000
Lynx	310	Mink	7,774
Beaver	3,781	Bear	152
Silver fox	206	Muskrat	2,000
Cross fox	800	Land otter	310
Red Fox	5,000		
White fox	1,791	Total	27,356
Beaver	3,200		

The market value of these skins was between $75,000 and $80,000.

The superficial area of the Yukon division is 176,715 square miles, which, with a total population of 6,870, would indicate a density of population at the rate of 1 inhabitant to 25⅔ square miles, the number of whites and creoles (19 and 18 respectively) being too small to be taken into consideration in this connection.

THE KUSKOKVIM DIVISION.

The third geographical division is named after the river next in *size* to the Yukon among Alaskan streams and comprises the whole of the Kuskokvim Valley, with all its tributaries, and two other rivers, the Togiak and the Nushegak, also emptying into Bering Sea.

The length of the main artery of this division is not known, the head waters of the Kuskokvim having thus far been untouched by the explorer or trader. We have the statements of natives to the effect that the upper Kuskokvim River flows sluggishly through a vast plateau or valley, the current acquiring its impetus only a short distance above the village of Napaimute. From this point down to the trading station of Kalmakovsky and to the southern end of the portage route between this river and the Yukon the banks are high and gravelly and chains of mountains seem to run parallel with its course on either side. This section of the Kuskokvim Valley is but thinly populated, though apparently the natural advantages are far greater than on the corresponding section of the Yukon. The soil is of better quality and is sufficiently drained to permit of a more luxuriant growth of forest trees, shrubs, and herbs.

Such indications of minerals as have been found here are the most promising of those in any portion of western Alaska, consisting of well-defined veins of cinnabar, antimony, and silver-bearing quartz.

Game and fur-bearing animals do not abound in this section of the river valley, as it is an old hunting ground and has been drained by constant traffic for more than half a century. The principal business of the traders at Kalmakovsky is derived from the almost unknown head waters of the river, where the beaver, marten, and fox are still plentiful.

From the head waters down to Kalmakovsky the people belong to the interior Indians, or Athabaskans, and for some distance below this point there seems to be a mixed race of Innuits and Indians; but from the village of Okhogamute down to the coast of Bering Sea the Eskimo alone appear on both banks of the Kuskokvim, peopling also the section of the delta between Cape Vancouver (Nelson Island) and the mouth of the river and the island of Nunivak, lying off the coast. This triangular section, having for its apex the above-mentioned village, teems with population. Villages dot the banks of the river at intervals, the distance between them gradually decreasing toward the seacoast, while on the delta the lakes and sluggish streams are lined with numerous settlements.

According to our standard, the people of the lower Kuskokvim River and of the tundras are very poor indeed, their country offering nothing but seals in the sea and the river, myriads of minks, some foxes, the brown bear, and a few moose. Among these animals the hair seal is of the greatest importance, furnishing oil and lavtaks (dried seal hides), the chief articles of trade with the white and native traders on the upper river. The skin of the mink is of so little value that traders often refuse to buy unless in very large quantities. Altogether these people would be in a sorry plight indeed were it not for the abundant supply of salmon during the summer. They all flock together on the banks of the Kuskokvim and fairly line the river with fish traps and drying frames, or poles, and from the beginning of June to the month of August the traps are constantly emptied and filled again. The quantity of fish secured during the season is very great, even in proportion to the number of inhabitants; but when we consider the wasteful practice of drying the fish until only a small fraction of the original substance remains, it can not astonish us to hear the natives complain of an insufficient supply. Over 4,000 people lay in the winter supply for themselves and for their dogs during a few months of summer, but it is safe to state that with a more economical mode of preserving the fish four times the number could live in comfort within the same space.

A glance at the map will show a very conspicuous broad opening through which the strong current and turbid waters of the Kuskokvim are discharged into Bering Sea. The tides in this capacious estuary run with a surprising velocity and an enormous vertical rise and fall.

At the village of Agaligamute I saw a mound, the apex of which was over 50 feet above the level of the sea at low water, totally submerged by the flood tide, assisted by a southwesterly gale. This extraordinary change in tide level extends up into the mouth of the river beyond the point where the trading schooners discharge their cargoes at Shineyagamute.

At each succeeding flood tide a traveler in his bidarka can pass over willow thickets of large size and groves of poplar, while at low water he finds himself sunk between high banks of bottomless mud, shutting him out from all view of the interior. The aspect of the country here, as far as it lies under the direct influence of the changing tide, is strikingly desolate and forlorn. The settlements along the banks and the tributary swamps of this river are located on little patches or narrow dikes only just above high water, and from here across to the hills to the eastward extends a great swale or watery moor of from 40 to 60 miles in width. Hummocks and ridges afford a path to the hunter here and there, and when the river is at its ebb the great flats of mud and slimy ooze are bare. A rank and luxuriant growth of coarse water grass, reeds, and rushes covers the whole expanse, with little clumps of dwarf willows and poplar along the elevated tide rim.

The native villages are ranged close together, each occupying all the dry land in its immediate vicinity. It is difficult even to find sufficient dry ground outside of the houses upon which to pitch a tent, and at low tide it is almost impossible to pass between the village and the water's edge, a mile or more away, separated as they are by an almost impassable mud.

On the western bank of the lower Kuskokvim the land is also low and swampy and the settlements are more widely separated from each other. In the lower part of this stream, in the vicinity of Good News Bay, where one bank can no longer be sighted from the other, there exists a group of low bars or islets upon which both the common seal and the maklak are said to "haul up" to breed. This statement has not, however, been definitely established, and it is probable that here, as elsewhere, these marine mammals bring forth their young on the ice; certain it is that large numbers of seals are killed on and in the immediate vicinity of these banks. The whole domestic economy of the natives here seems to be founded upon the maklak and the beluga, and the oil procured from them is the currency with which they purchase some necessaries and a few luxuries of life. Their clothing, manufactured of the skin of the ground squirrel, or yeveashka, is purchased with oil, and the few garments of cotton drill and gaudy prints to be found among them have been obtained in the same manner.

The density of population, as portrayed in the list of settlements on the river mouth and the country immediately adjoining, is such that in their active and energetic fishing for their own consumption they seem to absorb the greater part of the salmon run—at least the natives on the upper river complain quite frequently of the scarcity of this fish. This state of affairs may, however, be ascribed partly to the fact that not only do the Kuskokvim people proper fish here, but large numbers come annually from the lower delta of the great Yukon, where the run of salmon occasionally proves a total failure on account of ice grounding in the shallow channels and keeping the fish from ascending.

For many years one trading station belonging to one of the wealthy San Francisco companies seemed to absorb the whole trade of the Kuskokvim River. Two years ago, however, a rival agency was established, and at present there seems to be traffic enough to afford to each firm a moderate profit. The most valuable skins shipped from this region are those of martens and foxes, procured from the roving tribe of Koltchanes inhabiting the terra incognita about the head waters of the Kuskokvim.

There is another feature in this country which, though insignificant on paper, is to the traveler the most terrible and poignant infliction he can be called upon to bear in a new land. I refer to the clouds of bloodthirsty mosquitoes, accompanied by a vindictive ally in the shape of a small poisonous black fly, under the stress of whose persecution the strongest man with the firmest will must either feel depressed or succumb to low fever. They hold their carnival of human torment from the first growing of spring vegetation in May until it is withered by frosts late in September. Breeding here, as they do, in the vast network of slough and swamp, they are able to rally around and to infest the wake and the progress of the explorer beyond all adequate description, and language is simply unable to portray the misery and annoyance accompanying their presence. It will naturally be asked how do the natives bear this? They, too, are annoyed and suffer, but it should be borne in mind that their bodies are annointed with rancid oil, and certain ammoniacal vapors, peculiar to their garments from constant wear, have a repellant power which even the mosquitoes, bloodthirsty and cruel as they are, are hardly equal to meet. When traveling the natives are, however, glad enough to seize upon any piece of mosquito net, no matter how small, and usually they have to wrap cloths or skins about their heads and wear mittens in midsummer. The traveler who exposes his bare eyes or face here loses his natural appearance; his eyelids swell up and close, and his face becomes one mass of lumps and fiery pimples. Mosquitoes torture the Indian dogs to death, especially if one of these animals, by mange or otherwise, loses an inconsiderable portion of its thick hairy covering, and even drive the bear and the deer into the water.

The second river system belonging to this division is that of the Togiak, a stream emptying into the western portion of the coast indentation between Capes Newenham and Constantine. The course of this river is brief, the distance between the high plateau from which it springs and the seacoast being not much over 100 miles, but it is broad and has many lake-fed tributaries and its banks are lined with populous villages.

This whole region is poor in such natural products as white men desire, and one of the results of this poverty is that no white trader has ever thought it worth his while to visit these people. The Togiak Eskimo seem to live by hundreds and even thousands in an almost primitive state, without craving for any of the white man's possessions, with the sole exception of tobacco, an article they have received from surrounding tribes, and which they have learned to appreciate. They seem to live without any tribal authority or organization, and have no chiefs, each family managing its own affairs, coming and going with perfect freedom, without any regard for the wishes of other members of the community. Whole families and communities leave their winter houses or subterranean dwellings as fancy takes them, select some point on the tundra or on the river bank, and pass two or three months with no other shelter than that afforded by their upturned kaiaks and

a waterproof shirt made of deer entrails and bladders stretched over paddles and spears. As the wind changes they shift this unsatisfactory shelter about, seemingly caring for nothing beyond a small space to lay their heads where they are not exposed to the pelting rain or snow.

Brown bears (*Ursus richardsonii*) are plenty in the swampy river bottom during the fishing season, and are boldly attacked by the men with spears and lances; but when the salmon disappears the populace migrate inland to the hills and devote a month or two to the ardent pursuit of the ground squirrel to replenish their stock of clothing. The skins of minks and foxes alone are from time to time taken down to a small trading post on the seacoast and exchanged for tobacco by one or two courageous individuals who act as middlemen.

In the winter herds of moose are said to visit the Togiak River Valley, and, being easily hunted and overtaken in the deep snow, afford a welcome change of diet to the natives. Along the mountain range extending between the Kuskokvim and the Togiak rivers, and impinging upon the sea at Cape Newenham, reindeer are plenty, and are hunted constantly by the natives on both sides of the divide. Of the country between the headwaters of the Togiak and the Kuskokvim nothing is known, but it is safe to conclude that it is not permanently inhabited.

Turning away from these populous villages, with their mound-like, grass-grown dwellings, upon the apex of which the natives are wont to perch, gazing out to sea or into vacancy, recalling the aspect of a village of prairie dogs on an enlarged scale, we leave behind us the most primitive among the native Eskimo south of Bering Strait.

In the Nushegak district, named after the third river comprised in the Kuskokvim division, we find everywhere traces of long and intimate intercourse with the Russians, who made this valley and a series of lakes their highway of trade, connecting Bristol Bay with Kalmakovsky Rédoute and St. Michael.

The houses in all of this district outside of the missionary settlement of Nushegak are much the same as in the other northern divisions, and may be described as follows: A circular mound of earth, grass-grown and littered with all sorts of household utensils, a small spiral coil of smoke rising from the apex, dogs crouching upon it, children climbing up or rolling down, stray morsels of food left from one meal to the other, and a soft mixture of mud and offal surrounding it all. The entrance to this house is a low, irregular, square aperture, through which the inmate stoops and passes down a foot or two through a short, low passage on to the earthern floor within. The interior generally consists of an irregularly shaped square or circle 12 or 15 or 20 feet in diameter, receiving its only light from without through the small smoke opening at the apex of the roof, which rises, tent-like, from the floor. The fireplace is directly under this opening. Rude beds or couches of skins and grass mats are laid, slightly raised above the floor, upon clumsy frames made of sticks and saplings or rough-hewn planks, and sometimes on little elevations built up of peat or sod. Sometimes a small hallway with bulging sides is erected over the entrance, where by this expansion room is afforded for the keeping of utensils and water vessels and as a shelter for dogs. Immediately adjoining most of these houses will be found a small summer kitchen, a rude wooden frame, walled in and covered over with sods, with an opening at the top to give vent to the smoke. These are entirely above ground, rarely over 5 or 6 feet in diameter, and are littered with filth and offal of all kinds, serving also as a refuge for the dogs from the inclement weather.

In the interior regions, where both fuel and building material are more abundant, the houses change somewhat in appearance and construction; the excavation of the coast houses, made for the purpose of saving both articles just mentioned, disappears and gives way to log structures above the ground, but still covered with sod. Living within convenient distance of timber, the people here do not depend so much upon the natural warmth of mother earth.

The coast between the Togiak and the Nushegak is very sparsely peopled, but a few small villages are located in the large bays of Ooallikh and Kulluk. The inhabitants of these settlements derive their sustenance from both sea and land, making long journeys in their kaiaks to islands and banks on the sea, the resort of the seal and the walrus, while on the land they hunt the brown bear, the wolf, the fox, and the reindeer. For their clothing they depend upon the ground-squirrel, and occasionally the traveler sees a parka or shirt-like garment made of the breasts of sea fowls, cormorants, gulls, and other birds living in millions on the steep, rocky coast.

On the upper Nushegak River and around the numerous lakes from which its waters flow a greater variety of fur-bearing animals and game exists, the marten, mink, wolverine, beaver, land otter, wolf, and bear, and three varieties of the fox being still found here in ample numbers. It is owing chiefly to the indolent habits of the people, who are much given to festive assemblies, where singing and dancing are freely indulged in, that the quantity of furs secured from this district is quite small. A single trading post at Alexandrovsk's Rédoute has drained all this extensive interior region for years past, and the trader stationed there asserts that he did as much business in walrus tusks from the coast as in furs from the interior.

The salmon family, the great feeder of all the Alaskan people, frequent in astonishing numbers the Nushegak and other streams emptying into Bristol Bay. The facilities for building traps and weirs are also extraordinary, and American fishermen have for some years been engaged here every season in reaping a rich harvest and shipping the fish, salted in barrels, to market. Hundreds of barrels have been filled with a single clean-up of the trap. The only drawback to this business is the short period over which the run extends, necessitating the employment of a very large number of hands while it lasts. On the Igushek River, entering Bristol Bay from the westward, not more than 40 natives gather their winter store of dried fish on the river.

The walrus, above referred to, are killed only when they leave their natural element and resort to the secluded sandy beaches and bars during the breeding season.

For the temperature of the Kuskokvim division I have but very unsatisfactory data. In the whole valley of the Kuskokvim no observations have been taken, but at Alexandrovsk station, on the Nushegak River, I succeeded in obtaining a set of monthly means of temperature covering the period from September, 1879, to August, 1880, inclusive. These observations were taken by Mr. J. W. Clarke, the agent of the Alaska Commercial Company at that place, as follows:

		Deg. F.			Deg. F.
1879	September	45.1	1880	March	21.2
	October	32.0		April	26.5
	November	24.8		May	36.3
	December	11.5		June	46.5
1880	January	1.5		July	54.1
	February	14.2		August	53.0

The observer remarked that the winter of 1879–80 had been unusually severe. Another set of mean temperatures, covering the winter months, is as follows:

	Deg. F.		Deg. F.
1878—November	26.1	1879—March	23.7
December	26.6	April	29.1
1879—January	20.7	May	35.8
February	10.0		

I append a tabulated list of the villages and stations in this division, with their population, as follows:

Kuskokvim division.

Settlement.	Location.	Total.	White.	Creole.	Aleut.	Athabaskan.	Eskimo.
Nunivak Island	Bering Sea	400					400
Tanunak	Nelson Island	8					8
Kaliookhlogamute	do	30					30
Kashigalogamute	do	10					10
Nulakhtolagamute	Yukon Delta	25					25
Agiukchugamute	do	35					35
Chichinagamute	do	6					6
Chalitmute	do	60					60
Anogogmute	do	75					75
Kongiganagamute	do	175					175
Koolvagavigamute	do	10					10
Kinagamute	Kuskokvim River	60					60
Village at head waters	do	50				50	
Napaimute	do	60				60	
Roaming Koltchane	do	35				35	
Kalmakovsky Rédoute	do	12	2	2		3	5
Kokhlokhtokhpagamute	do	51					51
Toolooka-anahamute	do	59					59
Okhogamute	do	130		3			127
Kaltkhagamute	do	106					106
Oogovigamute	do	206					206
Single house	do	10					10
Tookhlagamute	do	92					92
Single house	do	10					10
Kwigalogamute	do	314					314
Tuluksak	do	150					150
Akkiagmute	do	175					175
Paimute	do	30					30
Kik-khtagamute	do	232					232
Kuljkhlugamute	do	75					75
Kooigamute	do	215					215
Mumtrekhlagamute station	do	29					29
Mumtrekhlagamute village	do	41					41
Napaskiagamute	do	196					196
Napahaiagamute	do	98					98
Lomawigamute	do	81					81
Taghiaratzoriamute	do	52					52
Naghikhlavigamute	do	193					193
Akooligamute	do	162					162
Kakhuiyagamute	do	8					8
Shovenagamute	do	58					58
Kik-khuigagamute	do	9					9
Apokagamute	do	94					94
Chimiagamute	do	71					71
Iliutagamute	do	40					40
Kuskokvagmute	do	24					24
Shineyagamute	do	40					40
Quinehahamute	Kuskokvim Bay	83					83
Agaligamute	do	120					120
Takiketagamute	do	21					21
Ki-changamute	do	18					18
Mumtrahamute	Good News Bay	162					162
Tzahavagamute	Bering Sea Bay	48					48
Aziavigamute	Azivigiak River	132					132
Togiagamute	Togiak River	276					276
Ikaliukha	do	192					192
Tunniakhpuk	do	137					137
Kassianmute	do	615					615
Nulatok	do	211					211
Kissaiakh	do	181					181
Annugannok	do	214					214
Togiak station	Bering Sea	24		4	2		
Ooallikh	do	68					68
Kulluk	Kulluk Bay	65					65

Kuskokvim division—Continued.

Settlement.	Location.	Total.	White.	Creole.	Aleut.	Athabaskan.	Eskimo.
Ignabek	Ignabek River	74					74
Anagnak	Nushegak River	87					87
Nushegak (Alexandrovsk)	do	178	1	86			91
Kanulik	do	142					142
Kakuak	do	104					104
Akulvikchuk	do	72					72
Agivivak	do	52					52
Kalignak	do	91					91
Molchatna villages	Molchatna River	180				180	
Akuliakhpuk	Lake of same name	83					83
Ekuk	Bristol Bay	112					112
Koggiung	Kvichak River	29					29
Kaskinakh	do	119					119
Chikak	Ilyamna Lake	51				51	
Ilyamna	do	49		13		36	
Kichik	Kichik Lake	91				91	
Paugwik (two villages)	Naknek River	192					192
Ik-khagmute	Lake Walker	162					162
Igagik	Aliaska Peninsula	120		2			118
Oogashik	do	177		1	176		
Oonangashik	do	37			37		
Mashikh	do	40			40		
Total		8,911	3	111	255	506	8,036

The superficial area of the Kuskokvim division is 114,975 square miles, and its total population 8,911. These figures would indicate a proportion of 1 inhabitant to every 13 square miles. The number of whites and creoles in this division (114 in all) is too small to take into consideration in this connection.

THE ALEUTIAN DIVISION.

Before proceeding eastward along the continent of Alaska in our brief survey of the geographical divisions of the Territory, we turn our attention to the Aleutian division, comprising the Aleutian Islands, from the Shumagin group, in the east, to the island of Attoo, in the extreme west, and also a small section of the Aliaska peninsula at its southern extremity. The islands appear to be a mere continuation of the main Alaskan range of mountain groups. Many of these islands contain volcanic peaks, and some of them are still in a state of moderate activity. Slight shocks of earthquake are common throughout the chain, but many years have elapsed since the occurrence of violent phenomena traceable to volcanic action. All the islands are mountainous, and many of them exhibit snow-covered peaks of from 4,000 to 8,000 feet in height. The entire division is treeless, dwarfed specimens of creeping willow being the nearest approach to timber found anywhere on the islands or mainland. The soil consists of vegetable mold, clays, volcanic detritus, and here and there a light calcareous loam. Grasses of all kinds grow in great abundance, except in the interior valleys and plateaus, where a lack of drainage has allowed dense masses of sphagnum to prevail over the perennial grasses natural to the soil. The surface of the soil everywhere, even where very tall grasses seem most luxuriant, is cut up into hummocks to such a degree that to travel on foot is exceedingly difficult and tiresome.

No mineral has been found in this division with the exception of its eastern extremity, where on the island of Ounga deposits of coal have been discovered, and thoroughly prospected through a long series of years. The quality of the coal was such, however, as to make competition with other coal regions of the Pacific Coast impossible.

The abundance of grass throughout this region would naturally lead to the conclusion that it might be adapted to cattle breeding or the dairy industry, especially since the mean temperature is not at all low; but the winters are sufficiently prolonged to necessitate the feeding of cattle with hay for six or seven months of the year, and the dampness of the climate makes the curing of hay very uncertain and laborious. Under the auspices of the Russian Government a weather average of seven years was obtained and recorded by the missionary Veniaminov. This has the remarkable showing of 53 clear days, 1,263 cloudy days, and 1,230 days with snow, rain, or hail. At Unalaska, the only place where cattle are now kept by the priest and by the traders, hay can be obtained from San Francisco cheaper than it can be cut and cured on the spot. Potatoes have not thus far been successfully grown in any part of this division; but whether this be due to the quality of the soil or to the climate, or to lack of proper attention to the subject, I am not in a position to decide. I merely note the fact.

The people inhabiting this district, though distinct in language and, to a certain extent, in habits, are undoubtedly of Eskimo origin. They were the first tribe subjugated by the Russian adventurers who invaded this region about the middle of the last century, and, having maintained ever since that time the most intimate relations with their conquerors, their individuality as a race or tribe has almost completely disappeared.

In their connection with the Russian Church the people of this division are divided into two parishes and one independent church organization. The parishes are Belkovsky, in the east, comprising the Shumagin group of islands and the settlements on the southern extremity of the Aliaskan peninsula, and Unalaska parish, in the west, comprising all the islands from Avatanok to Attoo. The parish churches are located at Belkovsky and Unalaska or Iliuliuk village, but nearly every settlement contains a small chapel, where prayers are read by unpaid native subordinate members of the clergy. An independent organization exists on the seal islands, where the natives maintain a priest and his assistant at their own expense, and with some assistance on the part of the lessees of the islands have erected a fine church.

The easternmost permanent settlement of this division is situated in Belkovsky parish, on Delarof Bay, on the island of Ounga, one of the Shumagin group. The Ounga settlement has a population of nearly 200 souls, principally Creoles, and presents quite an imposing appearance, owing to quite a number of neat frame buildings erected by prosperous sea-otter hunters. The most important industry of this and the adjoining settlements is the chase of the sea otter, of which about 600 are secured every year from a range extending over the whole Shumagin group. The outlying islands and rocks, especially those of Simeonof, Nagaï, and Vosnessensky, are the favorite hunting grounds. The native hunters have been reenforced here by fifteen or twenty white men, who, in order to circumvent the letter of the law, which requires that none but natives shall hunt fur-bearing animals in Alaska, have married native women, and by the special authority of the Secretary of the Treasury are admitted to the same privileges as the people of the country. Being more energetic, and at the same time more reckless, in their pursuit of these valuable animals, these white men have been very successful, and many of them have built or purchased smart little sailing vessels, enabling them to continue their hunting at all seasons of the year, even when the Aleut is kept at home by the gales and storms of winter. The final effect of this indiscrim-

inate hunting must, of course, be extermination. Limited quantities of fox skins of various shades are also secured on the island of Ounga.

The coal veins existing not far from the Ounga settlement on Humboldt Bay have already been referred to.

On the adjoining island of Korovinsky there is a small settlement inhabited altogether by Creoles, whose ancestors had formed an agricultural colony under the auspices of the Russian Fur Company. Up to the transfer of the territory these people were not allowed to hunt, and were compelled to maintain themselves by the cultivation of potatoes and turnips and by keeping a few head of cattle, but since that time they have gradually abandoned most of their agricultural pursuits and turned their attention to the more profitable pursuit of the sea otter.

On Popof Island there is a station of fishermen in the employ of a San Francisco firm engaged in the cod fishery on the Shumagin Banks. The fishing is done to a great extent in small boats on the more shallow banks within a short distance from shore, and the fish are carried to San Francisco in schooners. The number of fish taken annually varies between 500,000 and 600,000.

The trade of Ounga is divided between two rival companies, who have established permanent stores, and many private traders, who pay occasional visits in schooners and sloops.

The next settlement to the westward, named Vosnessensky, is situated on the small island of Peregrebnoi. The population of this village does not exceed 50 souls, but they secure between 60 and 70 sea-otter skins every year, and live in comparative affluence.

One of the most important points in the Aleutian division is the settlement of Belkovsky, situated on the southern end of the Aliaska peninsula. This is a village containing 300 inhabitants, a fine, new church, and many good log and frame buildings. The houses are perched on the summit of a bluff clinging to the flanks of the mountains. There is no sheltered harbor here, or even a safe anchorage for ships, and the gales and storms sweep over the settlement with uninterrupted fury, but the hardy sea-otter hunters select this spot as the one most convenient for setting out upon their expeditions to the outlying rocks and cliffs within a circuit of 50 miles or more. The sole industry of this place is, of course, the chase of the sea otter. The large number of from 1,900 to 2,000 of these rare and costly skins are annually sold at the three trading stores located in the village.

Under some civilizing influence or home restraint this ought to be, comparatively speaking, a wealthy community, but, as the case now stands, every cent of their surplus earnings that is not gathered in for the support of the church by the priest is squandered by the people in dissipation and for useless luxuries. The best and most costly styles of ready-made clothing are in common use, and only when at sea on their hunting expeditions do the natives wear home-made waterproof garments.

Some 50 or 60 miles to the southward of Belkovsky lies the island of Saunakh, the richest hunting ground of this whole division. Numerous hunting parties from the islands and the mainland to the east and west can be found here at all times of the year, encamped in tents or rude turf and sod shelters, watching for the rare intervals of weather sufficiently fine to allow them to put out to sea in search of their quarry. The trading companies have established here small depots of supplies, in order to take from the hunters every excuse for leaving the island and neglecting their business until they have collected a sufficient number of skins to warrant their *departure for localities* affording better

opportunities to spend their money. In many instances these remain at Sannakh from three to five months at a time, and chiefly of men, with one or two women to do camp duty and to p a few comforts for the drenched, chilled, and exhausted hunte he returns from the surf-beaten reefs and rocks.

Just north of Belkovsky is the small village of Nikolaievsk taining less than 50 inhabitants, while to the southward, but still mainland of the peninsula, there is the larger settlement of Pro or Morshevoi. The latter place contains nearly 100 people, w successful sea-otter hunters, securing an average of 500 skins year. These people are equally as opulent and extravagant a neighbors at Belkovsky, and are even more dissolute. In spite average annual revenue of nearly $1,000 to each family, the whol presents an aspect of great poverty, misery, and debauchery, has put its stamp more firmly and more shamefully upon the pe this place than elsewhere in all Alaska.

Near this village, less than half a mile away, there is a series o sulphur springs and ponds, which would afford the sickly nativ tial or permanent relief could they only be induced to bathe t but, while there is not one man, woman, or child in the villa from cutaneous disease of some kind, not one of them can be i to make the exertion necessary to try the efficacy of the waters.

The natural food resources of this whole region—fish, berrie etc.—are abundant and varied. Not far from Morshevoi walrus secured with but little difficulty, and large herds of reindeer fo came down at regular intervals from the upper peninsula to it ernmost point, and even crossed the strait to Oonimak Island, late, for some cause unknown, they have ceased to make their a ance. The old men and youths not absorbed by the sea-otter trap foxes all over the mountains and rolling plains and shoot occasionally, while the women are busily engaged in collectin wood and brush, the only fuel found in the country.

Passing to the westward from Belkovsky the traveler first the snow-covered peaks of two volcanoes on Oonimak Island, o the larger is Mount Shishaldin, rising to a height of 8,000 feet. rises constantly from the crater of this mount, and shocks of eart occur very frequently. The island is uninhabited, and has been condition for the greater part of the present century, though it i than many other islands of the Aleutian chain in natural m sustaining life.

Foxes are quite plentiful here, and sea otters frequent the re points, but ever since (nearly one hundred years ago) almost inhabitants of four or five populous villages were massacred Russian promyshleniks a superstitious dread seems to preve Aleut from making a permanent home at Oonimak.

Three small islands intervene between Oonimak and Un islands—Avatanok, Akoon, and Akutan—with a small settlen sea-otter hunters on each.

Unalaska Island, next in size to Oonimak, is the point of g importance in this division, having at its principal village (Iliuli parish church, a custom-house, with the port of entry for all w Alaska, two large trading establishments, wharves, and other c cial facilities. Nearly all the sea-otters secured from the Shu in the east to Attoo Island in the west are collected here and s to San Francisco.

The Bay of Unalaska, or Captain's Harbor, is completely land and is free from ice at all times of the year. Codfish and halil

plentiful throughout the bay, and herring and salmon crowd its waters in each season. It would seem easy for a small community to exist here on the natural resources alone, but the people of Iliuliuk are all sea-otter hunters, going as far as Sannakh and other distant hunting grounds upon expeditions extending over many months. As these men are generally successful the settlement is nearly as prosperous, financially, as that of Belkovsky, but they find themselves in a better condition, owing to the moral influence of the parish priest located here and the example of quite a number of the whites of a better class who have here congregated. The wharves and shipping afford a constant source of revenue to those of the natives who are able and inclined to labor, and nearly all the families are enabled to dispense with the laborious process of gathering driftwood and small brush for heating and cooking purposes, buying cordwood imported from Kadiak and coal shipped from British Columbia or San Francisco.

A school, in which both English and Russian are taught, is maintained by one of the trading firms, but the attendance is at best irregular. Nearly 50 per cent of the adults of Iliuliuk, however, are able to read and write in the Aleutian language and a few in the Russian.

The same firm that maintains the school also employs a physician and keeps a well-stocked dispensary, where natives are treated free of charge. This island and the fur-seal islands are the only localities in all Alaska where medical attendance can be obtained.

Experiments in vegetable gardening in Unalaska Island have not been attended with success. From 8 to 10 cows are kept, but, as already explained above, their sustenance during the winter is obtained with great difficulty.

When first discovered by the Russians this island contained many populous villages, but of these but four remain to-day outside of the harbor settlement. The villages of Makushin, Koshigin, and Chernovsky in the west and Borka in the east are all inhabited by sea-otter hunters, who spend but a small portion of the year in fishing and trapping black and red foxes. Altogether there are between 700 and 800 people on the island of Unalaska, of which about 25 are white.

As they live here to-day, in their more than semicivilized condition, each family generally inhabits its own hut or barabara. They have long since ceased to dress themselves in skins or their primitive garments made from the intestines of marine mammals, save at a few points where extreme poverty compels them to wear bird-skin parkas and other garments handed down from ancient times. The visitor to any one of these Aleutian settlements will find its people dressed in "store clothes," and on Sundays will notice a great many suits of tolerably good broadcloth. The women of the "wealthy" families dress in silks on great occasions, but generally in gowns of cotton fabrics made up with special reference to the latest fashion brought up from San Francisco. Although in their hunting excursions, and frequently when about the village, they still wear the ancient "kamleika," or waterproof shirt, made from intestines, as also moccasins or boots made of the throats of seals and soled with the tough flippers of the sea lion, they all dress up on Sundays and on the church holidays in calfskin boots and ladies' kids and slippers, shipped from San Francisco. Broad-crowned caps with a red band are still much in vogue among the male exquisites, evidently a legacy of former times, when Russian uniforms were seen on these shores. As a rule, however, the males dress soberly, with but little attention to display, color, or ornamentation, though they lavish some skill and taste in trimming their waterproof garments used in the chase or in traveling; as also the seams of the "kamleikas,"

the skin boots, and other waterproof covers, including those of their canoes and bidarkas, the latter being frequently embellished with tufts of gaily colored sea-bird feathers and delicate lines of goose-quill embroidery.

The women have a natural desire for bright ribbons and flashy jewelry, such as the traders supply them with; and the extent to which they deck their persons with gewgaws and trifles of this kind is only limited by their means. With the exception of a few whose lords have been exceptionally fortunate in capturing sea otters. they seldom wear bonnets or hats; but around their houses or at church they have handkerchiefs of cotton or silk tied over their heads, the married women, after the Russian peasant fashion, drawing them tightly about the head in the shape of a turban, almost completely hiding the hair from view, while the unmarried girls tie them loosely over the top of the head. The hair, when attended to at all, is put up in braids and tied up behind.

The interior of Unalaska Island consists of a labyrinth of ravines and gulleys with steep, grass grown hillsides and masses of volcanic rock and lava, deeply indented and cut in every direction by sparkling streams. Deep snow in winter and a dense growth of vegetation in summer make traveling across the island exceedingly difficult; and it is safe to assert that scarcely one in a hundred of the inhabitants ever penetrates to within a mile of the seashore.

The volcano Makushin, situated between the village of that name and Iliuliuk, though smoking occasionally, has had no eruption during the present century.

The next settlement to the westward is that of Nikolsky, on the southwest coast of Oumnak Island. When the Russians first arrived in this vicinity this island was the site of no less than eleven Aleutian villages and settlements, and the people, who at first welcomed their unknown visitors in the most friendly manner, became subsequently enraged at the treatment received at their hands and offered a stubborn resistance. The struggle here, as elsewhere, resulted in an almost total extermination of the original inhabitants, and Nikolsky, with its 120 inhabitants, is all that is left to-day of a once numerous people. What these people have lost in numbers they have gained in prosperity, selling every year, as they do, their 120 or 150 sea-otter skins to the rival trading firms at excellent prices. Black, cross, and red foxes are quite abundant, and the straits on both sides of the island contain excellent codfish and halibut banks. Immediately back of the village, and connected with each other, there are several fresh-water lakes, with an outlet to the sea through a shallow, meandering stream that passes down through the settlement, and at certain seasons of the year trout and salmon run up in such numbers, and with so much persistency, that they fairly crowd themselves out upon its banks, leaving nothing for the native to do but to stoop down and pick them up. The characteristics of the natives are the same as those described in the review of Unalaska. They support their chapel, as in other villages, and have their prayers read by one of their own number. Driftwood is less plentiful here than in other districts, and this scarcity involves additional labor on the part of the women, who must gather the "chiksha," or creeping tendrils of the empetrum. The men of Oumnak must also make long journeys to other islands to capture sea lions and seals, and on that account are not so well supplied with bidarkas.

In the year 1878 the island was disturbed by a volcanic eruption, and a small mud volcano arose between the prominent volcanic peak near the southern end of the island and the village. In 1880 both the old

and the new peaks were still smoking, and the latter was sputtering. During the shaking and trembling connected with these phenomena the fish seemed to have left the shores, and the inhabitants were for a season obliged to go to adjoining islands to lay in their winter supply. Quite a number of young fur seals are secured here annually by the natives, these animals passing down from the waters of Bering Sea into the northern Pacific Ocean during the autumn and early winter. The flesh of these animals is greatly prized, and the skins make excellent clothing and bedding.

The next settlement in order as we proceed westward is the village of Nazan, on Atkha Island. The people of this island have always spoken and still speak a dialect differing considerably from that of the Unalaska people. This difference was deemed sufficiently important by Veniaminof, the missionary of these islands, to have translations made into it of the principal books of prayer and portions of the New Testament used in the church services; and it is interesting to observe how families which have been separated for generations from their kindred on the fur-seal islands, or in the Unalaska district, or even on the Aliaska Peninsula, have preserved their distinct idiom and transmitted it to their children, who to-day speak both dialects distinctly and are proud of the accomplishment.

The village of Nazan contains 230 inhabitants, who are lodged in houses or barabaras of rather respectable appearance. They have a well-preserved little church, and give every indication of being a thrifty and prosperous community. Between 175 and 200 sea-otter skins are annually sold at the two trading stores.

Removed, as they live, from the evil influences of "too much civilization," the men of Atkha constitute perhaps the finest body of sea-otter hunters in the country. They make long journeys from their home, being carried on sailing vessels with all their hunting paraphernalia, bidarkas, etc., to distant islands, where they establish temporary camps and scour the outlying reefs and points, where their experience teaches them to search for the shy sea otter. These hunters remain in camp, engaged in the chase for periods of many months at a time, until, in accordance with previous agreement with the traders, the vessels that carried them out return to take them back. On the return of the party, the hunters tally their skins, settle all outstanding obligations, make their donations to the church, and speedily spend the surplus upon the outer and the inner man.

The island of Atkhá possesses also other natural resources. Those of the male population who do not go out with the sea-otter parties secure quite a rich harvest of fox skins, the black, cross, and red fox being quite numerous; and even the blue fox (*Vulpes lagopus*), now confined to but few localities throughout Alaska, is still found here.

The women of Atkha are quite expert in the manufacture of fine grass cloth and grass ware, and for this purpose they gather the grasses, dry and prepare them with the greatest care, and spare no amount of labor and unlimited patience in the execution of their designs, which take the form of cigar cases, baskets, mats, and the like. There is something exceedingly tasteful and exquisite in the delicate blending of colors and patterns which the grass workers of Atkha employ in the production of their wares, and an instance is known to me of a workbasket being made to order for a trader by an old native woman as the very best evidence of her skill. She was engaged upon the work six years, and it is unnecessary to say that the basket was a remarkable exhibition of beautiful handicraft.

Formerly the people now located at Nazan lived at Korovinsky Bay, on the north side of the island, where the first church was established as early as 1826; but a few years ago, when both fish and driftwood were becoming scarce, in order to better themselves, they removed to their present village site. Where they are now the Alaska mackerel is quite abundant, and quantities of this palatable fish are salted in barrels and shipped to California.

At one time under the Russian régime Atkha was quite an important place; it was the central depot of the western district, the jurisdiction of which extended westward as far as the Kurile Islands, and the Aleuts now on the Russian seal islands of Bering and Copper, off the Kamchatka coast, are all descendants of natives of Atkha. The Russians introduced cattle and goats here as an experiment in those days. The latter became very unpopular with the timid Aleuts on account of their pugnacious disposition and a morbid propensity for feeding upon the grasses and flowers that grew on the earthern roofs of the barabaros, frequently breaking them in or causing serious leaks. Though there is an abundance of nutritious grass all over the island, the stock-raising experiment was allowed to lag, and finally, a short time after the transfer of the country to the United States, the last of the bovine race found its way into the soup kettle and to the tables of the traders.

The numerous islands lying between Atkha and Oumnak in the east and Atkha and Attoo in the west are uninhabited, though nearly all show evidence of ancient settlements. At the present time they are each visited in succession by the sea-otter hunting parties of Atkha.

The extreme western settlement of the United States, or of North America, is located on the island of Attoo. This was the first land made and discovered by the Russians as they navigated eastward from the Commander Islands, on the coast of Kamchatka. Nevodchikof, a trader and navigator, landed here first in 1747. At that time the adjoining island of Agatoo was also inhabited by the Aleutians, but to-day the only settlement is a village of little over one hundred inhabitants at the head of the landlocked harbor of Chichagof. These people are pecuniarily perhaps the poorest of the whole Aleutian race, the sea otter, upon which they depend entirely for the means of purchasing such articles of dress and food as they have learned to regard as necessaries, having dwindled down to a mere fraction of the number formerly found on the hunting grounds. The able-bodied men of the village now secure an annual average of only 20 or 25 sea-otter skins. Though the volume of their trade with white men is exceedingly limited, nature supplies them with a profusion of food and ample supplies of driftwood to serve as building material and fuel. Cod, halibut, and Alaska mackerel occur here in great abundance, and a small species of salmon ascends the shallow streams every year. The women and children gather large stores of eggs of the aquatic birds that breed along the cliffs and rocky shores, and for years the most provident among the villagers have caught wild geese alive, clipped their wings, and domesticated them. Their present hunting grounds extend over outlying rocks and islets some distance to the eastward and southward, but in spite of this disadvantage they are strongly attached to the place of their birth and have declined many offers made by traders to remove them to more favorable localities for hunting the sea otter. Large numbers of sea lions are killed annually in the immediate vicinity, and nearly every particle of these huge animals can be put to some use. Of the skins they make boat covers and boots, and also use them in repairing the roofs of their houses; the intestines are made into waterproof garments

the sinews taking the place of thread, while the meat is a very palatable article of diet. Though poor, these people impress the visitor in many respects more favorably than their wealthier and better situated brethren in other parts of the Aleutian chain. The chief of the village, or "toyon," acts in the triple capacity of trader, leader in the chase, and leader in the church. Naturally the consumption of flour, sugar, tea, and woolen and cotton goods by this community is limited by the causes above referred to, and for clothing they have recourse to a great extent to the primitive bird-skin parkas and other skin dresses and garments such as were made and worn by their ancestors.

On account of the scanty supply of sea otters the natives have turned their attention to the protection and preservation of the blue fox, and of these they now kill about 200 annually, with every prospect of increasing their stock in hand. The island itself supplies them with nothing except a great abundance of berries in their season, principally the salmon berry and the *Empetrum nigrum*. The grasses found on all these islands seem to grow here, with exceptional excellence, as high as the waists and even the heads of the people, and are used largely by the people in the manufacture of mats, rugs, screens, etc., adding very much to their domestic comfort; they also weave or plait a great many handsome specimens of grass work in the shape of baskets.

The islands of the Pribilof group comprising the breeding grounds of the fur seal, now occupied by a wealthy trading firm under lease from the United States Government, are four in number, only two of which are frequented by the seals. St. Paul and St. George contain all these so-called rookeries, while Otter and Walrus islands are never visited by the millions of these animals playing in the waters about them. The subject of the fur-seal industry and its commercial and physical aspects has been fully discussed in a monograph written by Mr. H. W. Elliott, under the direction of the Superintendent of Census, and it only remains to say here that the business has been so thoroughly worked up and systematized as to bring it to a par with a well-conducted cattle ranch on a large scale—with this difference, perhaps, that greater care is lavished upon the seals and greater caution with reference to their comfort than is generally bestowed by farmers upon their cattle.

The people now classed as natives of the islands are in reality natives and descendants of natives of the various islands of the Aleutian division, a majority having sprung from Atkha and Unalaska. When the Russian navigator Pribilof discovered the islands, toward the end of the last century, he found them uninhabited, and in order to slay and skin the vast numbers of seals and sea otters then found there it was necessary to import laborers from the more populous districts. Under the Russian régime, when these sealers were lodged in wretched subterranean hovels and were fed upon seal meat and blubber the year round, it was considered a hardship to be stationed there, and the managers of the Fur Company found it necessary to relieve their force from time to time. Since the islands have fallen under the direct management of the United States Government the condition of the people has been improved to such an extent as to stop all applications for removal from the islands and to create a great demand on the part of the people of other islands to be transplanted there. Under the terms of the lease the lessees have erected comfortable cottages for all the families, and provide them throughout the year with fuel and an abundant supply of salted salmon free of charge. In addition to this, each family derives from the compensation paid by the lessees for the labor of killing and skinning the seals, which is done upon a cooperative plan devised by the natives themselves, a *cash income* of from $350 to $450.

Many other opportunities arise at various times during the year for adding to their income by labor of various kinds at a good rate of wages. Whatever necessaries, comforts, and luxuries the sealers may desire to procure from the stores are sold to them at very reasonable rates. Were it not for the strong propensity for gambling existing among them every sealer would have his bank account, but even now there is quite a respectable list of names upon the books of the company of those who annually draw interest from deposits in the savings banks of San Francisco. A school on each island, maintained by the lessees, under direct supervision of the special agents of the Treasury Department stationed on the islands, exerts its beneficial influence among the younger members of those isolated communities. Many of the boys and girls can exhibit quite respectable specimens of penmanship, and even composition in the English language. These were produced at school, and under great pressure; but if the visitor attempts to address one of these youngsters in English the reply will be a grin and a shake of the head. They have not thus far learned to apply the knowledge acquired. The average attendance at the school on St. Paul is 69, and at that on St. George 23, out of a total population of 390.

The islands are of volcanic origin, and almost entirely barren, with the exception of a scant covering of coarse grass on sheltered slopes, and as the climate is exceedingly rigorous and the atmospheric conditions very unfavorable no cultivation of the soil can ever be thought of. There is an abundance of fish in the waters about the islands, but as soon as the ice disappears the seals come, and where millions of these animals, each of which can devour from 15 to 20 pounds a day, are feeding there can not be much left for the human beings on shore.

On St. George only there is quite a large supply of birds' eggs in the breeding season, and these, with a few walrus secured from Walrus Island, are the only additions that nature makes to the larder of the islanders.

Blue foxes have been transplanted to these islands, and have been carefully protected and preserved from deterioration by the admixture of white foxes that sometimes reach the islands over the ice. At present about 600 of these animals are killed annually, making another addition to the revenues of the community.

I append a tabulated list of the villages and stations in this division, with their population, as follows:

Aleutian division.

Settlement.	Location.	Total.	White.	Creole.	Aleut.
Attoo	Attoo Island	107	1	32	74
Nazan	Atkha Island	236	2	14	220
Nikolsky	Oumnak Island	127	2	8	117
Iliuliuk	Unalaska Island	406	14	162	230
Makushin	do	62	1	30	31
Koshigin	do	74	1	.....	73
Chernovsky	do	101	3	4	94
Borka	do	140	1	6	133
Akutan	Akutan Island	65	2	.....	63
Akoon	Akoon Island	55	1	.....	54
Avatanok	Avatanok Island	19	.....	.....	19
St. Paul	Pribilof Island	298	14	.....	284
St. George	do	92	4	.....	88
Belkovsky	Aliaska Peninsula	268	11	89	168
Nikolaievsky	do	43	.....	.....	43
Protassof	do	100	2	21	77
Voznessensky	Voznessensky Island	22	1	.....	21
Ounga	Ounga Island	185	15	69	101
Korovinsky	Korovin Island	44	.....	44	.....
Pirate Cove	Popof Island	7	7	.....	.....
Total		2,451	82	479	1,890

The superficial area of the Aleutian division is 14,610 square miles, and the total population 2,451, indicating a proportion of 1 inhabitant to 6 square miles, 1 white to 178 square miles, 1 creole to 30½ square miles, and 1 Aleut to 7⅔ square miles.

THE KADIAK DIVISION.

This division comprises the south side of the Aliaska Peninsula as far west as the narrow isthmus between Port Moller and Zakharof Bay, the Kadiak group of islands, the Kenai Peninsula, and the coast of the mainland eastward to Mount St. Elias. Its western and northern boundary is the main Aliaska chain of mountains and Lake Ilyamna and the continuous mountain groups of the peninsula.

From the head of Bristol Bay, where the Kvichak River discharges the waters of the inland sea of Ilyamna down to Port Moller, the settlements are small and widely scattered. The sea along this whole coast is very shallow, and sandy bars extend far into the ocean. Being of the same continental Eskimo stock with the inhabitants of the Kuskokvim division, the people here live very much in the same manner.

The huge walrus frequents the coast at nearly all seasons of the year, providing the inhabitants with ample stores of food and canoe material, in addition to their tusks—the latter the common currency of this region. As already mentioned above, these marine mammals are generally killed on shore outside of their natural element, but the more venturesome among the natives go out to sea in parties of from five to ten canoes and boldly attack the whales frequenting these waters with their young.

The country between Bering Sea and the alpine chain of mountains extending along the eastern shore is a gradually ascending plain, dotted with lakes fed from the glaciers and eternal snows in the east, and having their outlets in the west. In the northern portion of the peninsula a belt of timber reaches down in the center to the vicinity of Lake Bocharof, but beyond this the forest disappears, and only the deep ravines exhibit a stunted growth of creeping willow and alder brush. The reindeer browses and herds all over this region, retreating during the summer up to their inaccessible retreats among the snowy peaks of the mountain range, where they are often seen by the traveler below as a moving line of black dots winding around the summits. During the autumn and winter they seek the vicinity of the lakes and scatter over the tundra, where they are hunted with comparative ease. Foxes, land otters, martens, and minks are plentiful throughout this section, and the gigantic brown bear of continental Alaska rivals the native fishermen in the wholesale destruction of the finny inhabitants of lake and stream.

The people of Port Moller and Oogashik are of the Aleutian tribe, which in former years made warlike expeditions along this coast, extending as far to the northward as the Naknek River and Lake Walker. At the village situated on one of the feeders of the latter lake the present inhabitants still tell the story of the night attack made by the "bloodthirsty" Aleuts long years ago, when every soul in the place was dispatched without mercy, with the exception of one man, who hid himself under a waterfall close by, and thus survived to tell the tale.

The peculiar formation of this country led to the discovery at an early date of several easy portage routes across the peninsula. The Russian promyshleniks first made their way to Bristol Bay and Nushegak across the peninsula from Kadiak, and found abundant evidence to show that this route of communication had been an intertribal highway for ages past.

During the early years of the Russian-American Company's sway in these regions a large proportion of their traffic was carried on in this way from Kadiak to Bristol Bay, and thence to the Kuskokvim and Yukon rivers and St. Michael. This was a tedious and expensive mode of transporting merchandise, but it was long preferred to the risk and uncertainty of sending sailing craft around to St. Michael through the shallow and stormy waters of Bering Sea. On the eastern side of the peninsula the mountains rise abruptly from the sea, a short day's climbing transplanting the traveler from tide water into the midst of glaciers and eternal snows and scenes of alpine grandeur and solitude.

The group of islands of which Kadiak is the largest is, perhaps, at the present day the most important section of this division, being the central depot and station of the several firms engaged in the fur trade. Kadiak Island was discovered by the Russian traders as early as 1762, but was abandoned owing to the hostile disposition of the natives, who were then quite numerous, and it was not until twenty years later that a permanent foothold was gained by Shelikhof, the founder and organizer of the Russian-American Company. For many years after Kadiak was the headquarters of that powerful corporation and the residence of the governor of all the Russian colonies on the Northwest Coast of America, until Baranof's ambition drove him to the eastward along the coast, where he met with English and American traders among the islands of the Alexander Archipelago, and there established himself, claiming Russian sovereignty over the coast to the southward far beyond the present boundary of Alaska.

The first missionary establishment of the Russian Church on these shores also landed on Kadiak Island, and from here a few courageous apostles set out to regions then totally unknown to preach the gospel among the savage tribes. A century of uninterrupted presence of Christianizing influences among them has so transformed these natives that not a vestige of their former fierce and savage nature can now be found, and their settlements will compare favorably in neatness and domestic comfort with most of the fishing villages of northern Europe. The climatic conditions of the island are more favorable than in most other sections of Alaska, the cultivation of potatoes and turnips and the rearing of cattle being among the general industries of the people. At the creole settlement of Afognak there is quite an extensive acreage, fenced in, under cultivation, and at the village of St. Paul, on Wood Island, and on Spruce Island these farming operations are extending every year. The crops are by no means abundant and can not be counted upon as a certainty every year, but there is enough to add much to the comfort of life and a pleasant and wholesome variety to the dietary of the people. Experiments in sheep raising have also been made with encouraging results so far as the quality of the wool is concerned, but the increase in lambs is much less than in Oregon or California, and is still more diminished by the ravages of eagles and ravens. As the northern portion of the island of Kadiak and the smaller islands to the northward are timbered, the people here have facilities for ship or boat building, of which they avail themselves to the fullest extent. One or more small crafts can always be found in process of construction, principally upon orders from the prosperous white sea-otter hunters of the Shumagin Islands or for the trading firms and private traders. A deputy collector of customs stationed at Kadiak has quite a respectable list of small craft built and registered in the district.

PLATE II.

LAKE WALKER, ALIASKA PENINSULA.- MT. KAKHTOLINAT.

Sea-otter parties are fitted out in nearly every village, and are frequently taken to distant hunting grounds in sloops and schooners. The old men and youths remain at home and employ their time profitably in hunting bears and trapping foxes, principally of the black and the cross variety. The salmon fishery is increasing in volume with astonishing rapidity, and furnishes labor for numerous hands, whites as well as native males and females. Codfish is found nearly everywhere in the shallow soundings of the coast, and forms a great staple of food with the people, but at present it is not exported.

The parish priest of the Russian Church located at Kadiak village has under his spiritual jurisdiction nearly the whole of this division, with the exception of the western coast of the Aliaska Peninsula and the upper portion of Cooks Inlet, the latter section being confided to the care of a missionary monk located at Kenai, on the Rédoute St. Nicholas.

On the coast of the peninsula opposite Kadiak Island coal has been found, together with many indications of the existence of petroleum; but if other mineral deposits are hidden within the recesses of the mountains they have thus far escaped the searching eye of the prospector and explorer.

The settlement of Katmai, in this vicinity, was once the central point of transit for travel and traffic across the peninsula. Three different routes converged here and made the station a point of some importance; now Katmai's commercial glory has departed, and its population, consisting of less than 200 creoles and Innuits, depend upon the sea otter alone for existence. The men could have reindeer in plenty by climbing the mountains that rear their snow-covered summits immediately behind them, but they prefer to brave the dangers of the deep and to put up with all the discomfort and inconvenience connected with sea-otter hunting, and in case of success purchase canned meats and fruit from the trading store, leaving the deer on the mountain undisturbed.

The people of two villages across the divide, in the vicinity of Lake Walker, come down to Katmai to do their shopping and to dispose of their furs, undertaking a very fatiguing tramp over mountains and glaciers and across deep and dangerous streams in preference to the canoe journey to the Bristol Bay stations. Only at long intervals a small party will proceed to Nushegak to visit the Russian missionary stationed there, to whose spiritual care they have been assigned without regard to locality or convenience.

Of the creoles embraced in the parish of Kadiak 103 are reported by the church authorities as being able to read and write in the Kadiak and a small proportion of them in the Russian language.

Northward from the Kadiak group we find a deep indentation of the coast, bounded by a lofty mountain range, with which several volcanic peaks in the westward and the peninsula in the east form the great estuary known as Cooks Inlet.

When the Russian traders first penetrated into the recesses of this region under the lead of two rival companies, in 1787 and 1789, they made war upon each other. Scenes of piracy and bloodshed were enacted in swift succession for ten long years, until Baranof, with his iron will and hand, settled all disputes by sending the disputants to Siberia for trial and punishment. Historically this whole region is one of the most interesting in all Alaska. It is also interesting to the ethnologist, from the fact that here are found the only instances of the interior Indian tribes of the Athabaskan family impinging upon the coast. The people known as Kenaitze (Kinnats or Tinnats) are strongly

defined; but they are a separate people from the Eskimo inhabiting Kadiak and the seacoast adjoining. The height of the male of the Kenai tribe is greater than that of the Eskimo, and a full-grown man of less than 5 feet 8 inches is rarely encountered. They are slim, lithe, and sinewy; the eyes are set straight in the head; the nose is prominent, frequently aquiline; the mouth is large, with full lips, the chin frequently receding; the skin is very preceptibly darker than that of the Eskimo; they wear their hair, which is thick and coarse, much longer than the natives of Kadiak; and the males gather it into a thick, stubby braid, hanging down the back, thickly smeared with grease and sometimes powdered over with feathers and down.

At the head of the inlet and on the rivers emptying into it from the north we find these people more primitive in their manners and customs, dressing in buckskin shirts and trowsers, the men and women almost alike. Many of their hunting shirts and breeches are tastefully embellished with porcupine quills and grass braiding, bead embroidery and fringes, while both nose and ears of the men are pierced for the insertion of the white shells of the dentalium, or hyqua, here called "sukli." This shell was formerly in general demand among the Indian tribes of the territory, but now this seems to be the only section where there is a steady call for the article. The women are treated well and kindly, but they have much heavier burdens laid upon them in the line of manual labor than those imposed upon their wives by the Kadiak or Aleutian natives. The Kenaitze travel a great deal by land, and the women serve as pack animals. In their domestic architecture and economy they also differ much from the Eskimo, their houses being always erected above the ground with logs and roofed with bark, the under side of each log being hollowed out, so as to fit down tightly over the round surface of the one beneath. They build their roofs with regular rafters, pitched sufficiently to shed the rain and melting snow, and a fireplace is reserved in the center, with a small aperture directly above it in the roof. The door to this structure is a low, square hole at one end, large enough to admit a stooping person, and a bearskin is usually hung over it, or a plank is placed before it. The floor is generally the natural earth, while around the sides of the room, a foot or two from the ground, and wide enough to allow people to stretch out upon at night, is erected a rude stage. On this staging they lay grass mats and skins for bedding and covering. This is the most primitive style of dwelling. Those among them who have had frequent intercourse with the trading posts and villages farther down the inlet have added to their houses wings, or small box-like additions, tightly framed together, with an entrance only from the interior of the larger structure. These little additions, used as sleeping apartments and sometimes as bathrooms, are furnished with the luxury of a plank floor, and in many instances have a small window of transparent bladder or intestine.

On all the principal hunting grounds, or along the trails most frequented by the Kenaitze, are found structures similar to those above mentioned, with additions built very compact and low, which serve as places of refuge for the hunter and traveler in times of snowstorm and excessive cold. A party of hunters can retire into one of these shelters and keep up quite a high degree of temperature with their own animal heat for hours, and even days, if the storm should be prolonged, and they are safe from the cold, though the air they breathe may not be of the best.

The Kenaitze are in disposition much more taciturn than their Innuit neighbors, and are more dignified in demeanor; but they are ardent

hunters, spending most of their time and energy in the chase on land, where the fur-bearing animals peculiar to the country are numerous, varied, and valuable, and often make long journeys into the interior, up and through mountain defiles, and even over summits and glaciers, erecting at every convenient camping ground the temporary shelters above referred to. At localities where tribes or families meet for traffic or hunting they build up somewhat larger structures, consisting of two open sheds with sloping roofs facing each other, allowing the inmates to warm themselves by one and the same fire. These people along the rivers and the northern portion of the inlet build birch-bark canoes, but when they get down to the seaboard or to the Innuit settlements of the lower peninsula they buy bidarkas or skin canoes for the purpose of fishing or navigating in salt water. Wooden canoes or dugouts are not known west of the mouth of the Copper River.

The Kenaitze are expert fishermen, and certainly enjoy an abundance of piscatorial food, salmon of fine size and quality running up their rivers, and trout crowd the hundreds of lakes in their country, where they are found all through the winter and caught through the ice. The fishermen descend to tidewater only when king salmon or "chavitcha" come up from the sea in dense masses, or when schools of white whales or grampus follow up the "eulachan" or candle fish until they are left high and dry by the receding tide and fall easy victims to the natives. The variety of native mammals is very great. Bears both brown and black, the former of great size and ferocity, frequently from 10 to 12 feet in length, strongly suggestive of the grizzly, are killed in large numbers by the hunters every year. The deer found here is apparently a larger cousin of the reindeer, the woodland caribou. Moose, single and in family groups, can be found feeding through the low brushwood and alder swamps, and mountain sheep inhabit the higher mountains, feeding upon the nutritious grasses and moss found in the clefts of mountain tops and rocky ledges. The fleece of this sheep (or goat?) is surprisingly long and coarse, their skins making a favorite bedding of the natives. These natives trap the beaver on streams and lakes, the land otter, not only in the interior, but on the seashore, and kill the porcupine, the whistling marmot, wolves, black and gray, the lynx, the wolverine, the marten, mink, muskrat, and a small white weasel, called here "ermine" by courtesy. Of wild fowl they have the grouse (both the white ptarmigan and the ruffled grouse), wild geese and ducks in millions during the breeding season, and the blue sand-hill crane and white swan in flocks.

From the Kenai settlements on the eastern shore of the inlet and the Kustatan village opposite, southward, the men are also sea-otter hunters, going down to Anchor Point and the Barren Islands in parties, or to the reefs of Chermaboura and Cape Douglas. The Kenaitze population proper is all located north of a line drawn from Anchor Point to the Ilyamna portage of the west coast of the inlet, south of the deep indentation of the Kenai Peninsula called Chugachik or Kuchekmak gulf. This country is settled by Innuits, who have peopled the east coast of the peninsula, and from there eastward along the mainland nearly to the Copper River. Two of the trading stations in the Kenai district are located among these Innuits at English Bay and Seldovia. Three more stations, consisting each of two rival stores, are located at Kenai (Rédoute St. Nicholas), on the river Kinik, and the village of Toyonok, or West Foreland.

The central point of all this region is Kenai, once the site of the earliest permanent settlement on the inlet, the remnants of which can still be

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About 30 miles down the coast from Kenai there is another settlement
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superannuated employees of the old Russian company, were ordered to
settle some fifty or sixty years ago at Ninilchik, and their descendants
live there still. Each family has quite a large garden patch of turnips
and potatoes, yielding enough to allow the owners to dispose of a large
surplus to traders and fishermen. They have quite a herd of cattle,
and the women actually make butter; but they are not sufficiently
advanced in farming lore to construct or use a churn, and the butter is
made in a very laborious manner by shaking the cream in bottles.
They also raise pigs and keep poultry, but on account of the hogs run-
ning on the seashore digging clams and feeding upon kelp, and the
chickens scratching among fish bones and other offal, both their poultry
and their pork are fishy to such an extent as to be made unpalatable.
The young men of the settlement go out to hunt the sea otter at Anchor
Point, or even lower down the coast.

The whole region about Cooks Inlet is wooded, the forest being here
and there interspersed with marshy tundras; but everywhere along the
coast the timber is small and stunted, being of larger dimensions only
in the interior.

In the vicinity of Anchor Point, on Kuchekmak Gulf, and on Grahams
or English Harbor, extensive coal veins appear along the bluffs and
come to the surface. The Russian-American Company jointly with a
San Francisco firm worked here for years to develop the mines and
obtain a product good enough for the use of steamers and engines, but
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transfer of the Territory took place. A few remnants of the extensive
buildings erected in connection with these mining operations still remain
the north shore of English Bay.

seen. A Russian missionary is located here, and a new church is nearly completed.

At the time of the transfer of the Territory Kenai was still a fortified place, with a high stockade and octagonal bastions at the salient points. Both stockade and bastions, with their primitive armament of 1½-pound falconets, have disappeared since then, but a number of new buildings have sprung up, and a thrifty colony of creoles has taken to the cultivation of potatoes and turnips on a larger scale than had ever been attempted before. Perhaps 10 or 12 acres are planted here now, and several of the families keep cattle. Some of the choicest salmon of the territory is salted here, and is barreled and shipped to San Francisco. The hunting grounds in the immediate vicinity do not yield their former abundance of valuable furs, but the presence of the missionary establishment causes a concentration of natives from all parts of the inlet at least once a year and brings considerable trade to this old station. It was on the river Kakhu, or Kenai, that the Russian mining engineer Doroshin reported the existence of surface gold in paying quantities. After laboring with a numerous party in the mountains for two seasons at great expense to the Russian American Company, he returned with a few ounces of the precious metal, but he could present no inducement to the corporation to proceed any further in this enterprise. Since that time American prospectors have passed years in this region following up the Russian's tracks, but not one of them has thus far found gold enough to warrant him to work the find. In former years Kenai was also the site of a large brickyard, the only establishment of the kind in the colony, from which all stations and settlements were supplied with the material for the old-fashioned Russian ovens or heaters.

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The easternmost section of this division comprises the coast bordering upon the Gulf of Chugatch, or Prince William Sound, and from there to Mount St. Elias this is essentially an alpine region. The whole coast between Cape St. Elizabeth in the west and the mouth of Copper River in the east is deeply indented with coves and fiords, and towering peaks rise abruptly from the sea. Nearly every valley and ravine has its glacier, some of the latter being among the most extensive in the world. In Port Valdez, at the northern extremity of the Sound, a glacier exists with a face 15 miles in length at the seashore, while its downward track can be traced almost to the summit of the alps. Huge icebergs drop off its face with a thundering noise almost continually and drift out to sea, and the whole extensive bay is covered with small fragments, making it inaccessible to even boat navigation, and consequently a safe retreat for seals, which sport here in thousands. Port Fidalgo in the east and Port Wells in the west also have tremendous glaciers, and another glacial formation forms the portage route between Chugatch Bay and Cooks Inlet. Though covered with a dense forest to a height of 1,000 feet from the sea level, these mountains are comparatively poor in animal life, and support in small settlements only a very limited population scattered along the coast and islands. The timber is nearly all spruce, some of it of extraordinary size, but no practical use has been made of this material since Baranof established a shipyard in Resurrection Bay, on the Kenai Peninsula, and with the aid of English shipwrights constructed a few small vessels. One of these crafts was a three-master, and boasted the title of frigate, though it measured only 100 tons.

Traces of the Russian woodman's ax are still plainly visible along the western coast of the Sound and on Montague Island, and the huge logs still lie where they were felled in anticipation of an industry that was not developed.

The principal fur-bearing animals of this section are the black and the brown bear, otter, marten, and mink, but on the eastern side of Nuchek Island there is quite an extensive sea-otter hunting ground, which supports two large trading stores on that island. Whales are plentiful in these waters, but the natives are not bold enough to attack them. Codfishing banks exist in a few localities, and all the rivers and streams have their annual run of salmon. In the early times of the Russian régime Nuchek, which was then called Rédoute St. Constantine, was quite an important trading center, being visited by Thlinket tribes from the coast to the eastward as far as Bering Bay, and also by the Copper River Indians of the Tinneh family. This traffic, to a certain extent, still exists, but not in the old dimensions. There is every reason to believe that the Copper River people have much decreased in numbers, and that they find other outlets for their trade to the northward on the Yukon or the Tennanah.

Under the protection of the Russians the Eskimo race here occupied the coast as far eastward as Kaiak Island and Comptroller Bay, but in late years the Thlinket have gradually advanced westward, first mixing with the Eskimo and then absorbing and superseding them, until at the present day they are established in predominant numbers even west of the mouth of the Copper River.

The number of sea otters sold at the Nuchek stores every year does not exceed 150, and are all killed between the islands of Nushegak and Kaiak. The whole Eskimo population of this secluded district is only about 500, and, as they are poor, they will most probably remain in this seclusion, which is broken but once or twice a year by the arrival of the

trading schooner. They have food in plenty, such as it is, consisting of seal blubber, salmon, the meat of the marmot, porcupine, and bear, varied occasionally by the welcome addition of mountain sheep, an animal that is found over all this alpine region, and is as persistently and skillfully hunted by the natives as is the chamois in Switzerland and the Tyrol. The meat of this mountain sheep, or goat, is in every way equal to the finest tame mutton, but by the time one of the native hunters brings a carcass down from the mountains to the seacoast or the trading store the meat is sadly bruised and lacerated, and presents rather an uninviting appearance. Foxes, of course, are plentiful here, as everywhere in Alaska, in two or three varieties, some very fine specimens of silver-gray being brought down to the coast by the Copper River Indians. No mineral deposits have been discovered in these mountains, with the exception of pure native copper, specimens of which have been secured from Copper River ever since the Russians first made their appearance there, but repeated attempts by Russians, and later by Americans, to locate the source from whence these specimens came have always resulted in failure. An American prospector who lived with those Indians for two years reports that he failed to discover copper or gold in paying quantities anywhere in that region, but his individual opinion is not sufficient to deny the existence of copper deposits, of which so many specimens have been procured; and the ultimate location of these deposits is only a question of time and energy.

Of the features of the coast between Copper River and Mount St. Elias but little is known, but it is evidently a narrow tableland between the high mountains and the sea, well timbered, and traversed by numerous shallow streams that take their origin in the glaciers and eternal snows. The natives describe it as an excellent hunting ground. The island of Kadiak is undoubtedly the point where Bering first approached the North American continent, and upon the southern point of which he bestowed the name of Cape St. Elias. It is not permanently inhabited, but hunting parties from the mainland sometimes remain here for many months at a time.

The Eskimo of this section partake of the same characteristics with the people of Kadiak and the peninsula.

Timber exists here in the greatest abundance. The dwellings of the people are generally under ground, according to Innuit custom, but where the Thlinket or Kolosh race has mixed with them and gained supremacy the mode of architecture changed at once to substantial log structures entirely above ground, generally with a plank platform running along the entire front, on which the inmates assemble in fine weather and sit upon their haunches, wrapped in greasy blankets, smoking and staring stupidly into vacancy. At Nuchek there is a Russian chapel, but it is eight or nine years since a priest has made his appearance there. A creole reads prayers every Sunday in the chapel, which is kept in excellent repair with the aid of donations from all the surrounding villages. It is touching to observe the constancy and faith of these poor people, who have gathered at this central point from a circuit of 100 miles every spring for the last nine years in the expectation of seeing a priest come at last to give them his blessing and to solemnize the marriages that have been contracted during this long interval. Baptism can be performed by the church reader under the rules of the Russian Church.

I append a tabulated list of the settlements and the population of the entire peninsula division, as follows:

Kadiak division.

Settlements.	Location.	Total.	White.	Creole.	Eskimo.	Athabaskan.	Thlinket.
Mitrofania	Aliaska Peninsula	22		22			
Kaluiak	do	30		1	29		
Sutkhoon	do	25			25		
Kuyukak	do	18			18		
Katmai	do	218		37	181		
Kukak	do	37			37		
Ashivak	Cape Douglas	46		6	40		
St. Paul	Kadiak Island	288	20	253	15		
Lesnova	Wood Island	157	2	56	99		
Yelovoi	Spruce Island	78		78			
Oozinkie	Kadiak Island	45		45			
Afognak (two villages)	Afognak Island	339		195	144		
Ooganok (two villages)	Kadiak Island	73			73		
Ooiak	do	76			76		
Karluk	do	302	1	24	277		
Akhiok	do	114			114		
Ayakhtalik	do	101		4	97		
Kaguiak	do	109	1	6	102		
Three Saints Bay	do	7		4	3		
Old Harbor	do	160		5	155		
Orlova	do	147		8	139		
Chiniak village	do	24			24		
Killuda	do	36			36		
Alexandrovsk	Kenai Peninsula	88	1	12	75		
Yalik	Eastern Coast Kenai Peninsula.	32			32		
Seldovia and Ostrovki	Kenai Peninsula	74		38	36		
Laida	do	29				29	
Ninilchik	do	53		53			
Kassilof	do	31				31	
Chkituk and Chernila	do	50		10		40	
Skilakh	do	44				44	
Kenai Rédoute	do	44	2	42			
Titukilak and Nikishka	do	57				57	
Kultuk	do	17				17	
Knakatnuk	Kinik River, Cooks Inlet.	57	1	1		55	
Zdluiat	do	16				16	
Nitakh	do	15				15	
Kinik	do	46				46	
Susbetno (first village)	Cooks Inlet	44				44	
Susbetno (second village.	do	46				46	
Teyonok station and village.	do	117	2	6		109	
Kustatan	do	65				65	
Chenega	Prince William Sound.	80			80		
Kanikhluk	do	54			54		
Tatikhlek	do	73			73		
Nuchek	do	74	3	11	60		
Ikhiak and Alaganu	Mouth of Copper River.	117			117		
Cape Martin	do	7	1				6
Atnah villages	Copper River	250				250	
Chilkhaat villages	Comptroller Bay	170					170
Yaktag villages	Foot of Mount St. Elias range.	150					150
Total		4,352	34	917	2,211	864	326

The superficial area of the Kadiak district is approximately 70,884 square miles; the inhabitants, numbering 4,352, would give us a ratio of 1 inhabitant to 16¼ square miles. The ratio of civilized population (white and creole) is 1 to 74½ square miles.

THE SOUTHEASTERN DIVISION.

The narrow strip of coast line from Mount St. Elias to Portland Canal, a strip that was patched upon the solid body of the Russian

possessions on this continent through the ambition of Baranof, differs in all its characteristics from the bulk of Alaska, partaking essentially of those of the coast of British Columbia and the islands adjoining. Though Baranof, or rather the company which he represented, at the beginning of the present century was powerful enough not only to establish but to maintain possession of the narrow belt between the mountains and the sea, he was never able to extend the Russian possessions into the interior, where the outposts of the Hudson Bay Company were already located, and as the successor of the Russians the people of the United States have shut off the British possessions from the seacoast for a distance of nearly 500 miles.

This whole division is densely wooded and exceedingly mountainous in its formation. The coast is deeply indented with bays and fiords, and for two thirds of its length is sheltered by the numerous islands of the Alexander Archipelago. The forests, impinging as they do upon the seacoast everywhere, are easily accessible, and will be of the greatest value in the future either as fuel or as building material. The Alaska spruce is the prevailing forest tree; but in the southern section of the division the yellow cedar, the most valuable of all the northern trees, exists in considerable quantities. The wood of this tree has always been an article of export to a limited extent, and it is purchased by the cabinetmakers of the Alaska coast at the present day; but the extent to which this industry might be developed is not yet known. Large bodies of this timber are found farther south in the adjoining British possessions. Coal has been discovered on many of the islands and on the mainland, but no practical use has thus far been made of the discoveries. An extensive vein of bronze-copper was opened on Prince of Wales Island by a British Columbian firm, but for some reason unknown the enterprise languishes. Discoveries of gold-bearing quartz have been made on Baranof Island, in the immediate vicinity of Sitka, only since the transfer of the territory, and for a time quite an excitement was created; but now these ledges are scarcely worked at all, being simply held by the owners for further developments, or until some process can be discovered for working with profit the peculiar grade of ore existing there. In the meantime surface gold was discovered on the peninsula between the inlets of Takoo and Chilkhat. The mining population of Sitka, and, to a great extent, that of the Wrangell and the Cassiar country, was drawn away to the new discoveries, where they are now engaged with apparent success. Veins of quartz have also been located in the same locality; and with the undaunted prospector throughout all this region, in a few years more the mining resources of southeastern Alaska will be fully known.

Next in importance to the mining industry stands the fur trade, once the sole foundation of the country's prosperity. From the silver and the black fox, the marten, and the land otter the most valuable furs are secured by the natives, together with skins of the black and the brown bear, a limited quantity of beaver, and a few sea otter. Owing to excessive competition the prices paid for these furs are abnormally high, and the profits from the trade must be correspondingly small.

Salmon, halibut, and herring crowd all the waters of the seacoast as well as those of the interior channels of the archipelago, and two or three canning and salting establishments have been in operation for some years. The oil procured from herring and dogfish and shark finds a ready market. A few small sawmills furnish rough lumber for local consumption, and a few small craft, including one steamer of 80 tons burden, ply over the sheltered inland waters and as far north as Bering

Bay on the open coast. The natives on many of the islands make quite a profitable business of killing hair seals for their hides and the oil rendered from the blubber.

The climate of this division, especially from Cross Sound to the southern boundary, is very peculiar. The temperature is not as low as might be expected in this latitude, thermometrical observations extending over nearly fifty years presenting a minimum of only 4° below zero, while the maximum reached +87°; this, however, occurred but once during the period mentioned. The mean annual temperature derived from all these observations is 43° 28′.

The rainfall statistics, extending over the same period, show a mean annual precipitation of over 80 inches, and several of the annual records are above 90, while one reaches 103. The number of days on which rain fell during the periods referred to averaged 165 per annum, and of snowfall 33; but during several years the rainy days numbered as high as 250 and even 264 a year. The highest number of days on which snow fell here was 47. This enormous precipitation makes it plain that, in spite of the comparatively high temperature, the climate of southeastern Alaska can not be called an agreeable one, or one that would hold out a prospect of success to agricultural emigrants. Vegetable gardens, however, have been successfully cultivated all over this district wherever white men settled who were willing to bestow the necessary labor upon this way of ameliorating their daily fare. Potatoes were found among the natives of this region by the very first English and American visitors, especially among the Hyda tribes, and at present they are freely offered for sale by the natives wherever white people congregate for mining or trading. Owing to the rugged and mountainous formation of the country and the thick undergrowth, making the forest almost impenetrable, the keeping of cattle is surrounded with great difficulties, and hay is not easily cured during the few sunny days of which this section can boast.

Nearly all the natives inhabiting the southeastern division are of one kin—the Thlinket tribe, or "Kolosh" as they were called by the Russians. Only at the southern portion are found a few settlements of the Hyda tribe from British Columbia. When the Russians first came to the Alexander Archipelago the natives offered a stubborn resistance to their permanent establishment. . The first blockhouse or station erected by Baranof, at old Sitka, was taken by surprise and all the inmates put to death by the combined Sitka and Stockin tribes, and about the same time the Thlinket of Bering Bay or Yakutat fell upon the settlement established there, killing the inhabitants and carrying off a few women into captivity. About this time, also, two large sea-otter hunting parties, consisting of Innuits, under the leadership of Russians, were surprised and almost annihilated by the Kolosh.

Undaunted by these disasters Baranof drove the native warriors from their fortified position on the site of the present town of Sitka and established himself there, making that point the headquarters of the great Russian Fur Company. From that time forth the Thlinket only indulged in an occasional robbery or murder of isolated hunters, but no cordial intercourse was ever established between them and their conquerors. The business between them was carried on in a cautious manner, highly suggestive of a state of siege. The Russian priests made very little impression upon the warlike pagans, who only occasionally, for the consideration of a present, consented to submit to the ceremony of baptism.

As late as 1855 the Sitka Indians attacked the Russian fortifications,

an action of several days resulting, during which quite a number were killed and wounded on both sides, but the difficulty was finally settled by treaty.

At that time the town of Sitka was thoroughly fortified with numerous bastions and batteries mounting between 60 and 80 cannon of various calibers. The most important of the batteries was located about the mansion of the chief manager of the Russian-American Company, which was perched upon a steep, rocky elevation, and is still known as "the castle." Here 17 cannon (12 and 24 pounders) were planted and kept constantly loaded. Every male inhabitant of the Russian settlement of Sitka had his station assigned to him in case of attack by the natives, and all employees were drilled occasionally in the manual of arms, etc. The military garrison, consisting of 180 soldiers of the Siberian battalion, mounted guard regularly, with sentries stationed at the various gates in the stockade.

For nine years after the transfer of the Russian possessions to the United States a military post was maintained here, consisting at first of nearly 250 men, but the number was gradually diminished, and the last troops were withdrawn in 1876. A few difficulties arose during this time between the troops and the Indians of Sitka and one or two of the more distant tribes, but they were generally adjusted by arbitration and a mere display of readiness to fight. A United States man-of-war now (1880) does police duty at Sitka, patrolling occasionally the interior channels of the Alexander Archipelago. It is safe to predict that the mere presence of some armed force in this section will always be sufficient to keep in check the naturally warlike and arrogant Thlinket.

Since the transfer of the territory the town of Sitka has continued to be considered as the most important point in Alaska, and whatever display there has been of military or civil power on the part of the United States was made here. The collector of customs for the district of Alaska resides at Sitka, and is unable to communicate with his deputies in the west except by way of San Francisco.

For thirty or forty years previous to the acquisition of Alaska by the United States the Sitka settlement contained a number of schools and churches—the latter comprising the cathedral of the diocese, two smaller Russian chapels, and a Lutheran church for the use of Germans, Swedes, and Finlanders in the employ of the Russian company. Of the schools one was for the sons of the higher officers of the company, under the ambitious name of "Colonial Academy," one a boarding school for girls of the same class, and two other schools for the children and orphans of the lower grades of employees and laborers.

For some time Sitka was also the site of a theological seminary of the Russian Church. All these establishments, with the exception of the cathedral, have been discontinued, and at present the only efforts in the field of education are made by missionaries and teachers sent out by the Presbyterian Board of Missions, with some pecuniary assistance of the naval authorities at Sitka. Mission schools have been located at Chilcoot, Hoonyah, Wrangell, and at Shakan, on Prince of Wales Island. At Wrangell there is also an industrial home for native girls, maintained by the Presbyterians, and the chapel and the parsonage of the Roman Catholic Church. Concerning these missionary establishments, the Rev. Sheldon Jackson, D. D., has furnished the following statistics:

The first school at Wrangell was established in 1877 and placed in charge of a lady teacher. In 1878 a home for girls was added to the establishment, and in the season

of 1880 and 1881 this latter establishment contained 30 inmates, while the school had an average attendance of 60.

At Sitka a school was opened in April, 1878, and kept open with varying success until in April, 1880. An attendance of 130 (grown people and children) was reported.

One of the naval officers stationed at Sitka introduced upon his own responsibility a system of compulsory education, appointing regular truant officers. Each child was labeled, and if found on the streets during school hours was arrested and the head of the household to which he or she belonged was fined or imprisoned. This extraordinary and arbitrary measure worked so well that the "average attendance" was suddenly forced up to between 230 and 250, one day reaching 271, a result highly gratifying to the Presbyterian teachers, whatever objections the public at large may have had to this modus operandi on constitutional grounds. The school above mentioned was for the Indians alone. For the benefit of the creole children a school was established in 1879, with the assistance of the naval authorities, who furnished a teacher and interpreter in the person of an educated creole lady, who was rated as an "able seaman." This school had an average attendance of from 45 to 55 children, who were instructed in the English language and primary branches.

In the summer of 1880 a Christian Indian woman of the Tongas tribe was sent to open a school among the Chilkhats at the head of Lynn Channel, and here, later, buildings were erected at that point by the Presbyterian Board of Missions and a competent teacher installed, who reports an average attendance of 75 pupils.

A school was also established among the Hoonyah tribe on Cross Sound. The teacher reports 70 pupils.

At the southern end of Prince of Wales Island, on Cordova Bay, a chief presented a house to the Presbyterian Mission and a school was opened, with an average attendance of 80 pupils.

At Shakan, on the north end of Prince of Wales Island, a small school has been opened and placed in charge of a native teacher and his wife, both former pupils of the Wrangell school.

We append a tabulated list of the settlements and population of the southeastern division, as follows:

Southeastern division.

Settlement.	Location.	Total.	White.	Creole.	Thlinket.	Hyda.
NATIVES.						
Chilkhat tribe.						
Yendestak	Chilkhat River and Bay	988			171	
Kutkwutlu	do				125	
Kluckquan	do				565	
Chilcoot	Chilcoot River				127	
Hoonyah tribe.						
Koudekan	Chichagof Island	908			800	
Kinghuggue	do				108	
Kheotznahoo tribe.						
Angoon	Admiralty Island, Hoods Bay	666			420	
Scutakon	do				246	
Kekk tribe.						
Klukwan	Kuprianof Island	568			261	
Village	do				82	
Do	Koo Island				100	
Do	Port Houghton				50	
Do	Seymours Channel				75	
Auk tribe.						
Village	Stephens Passage	640			290	
Do	Admiralty Island				300	
Do	Douglas Island				50	
Takoo tribe.						
Tekeatl's village	Takoo River and Inlet	269			28	
Chitklin's village	do				113	
Katlany's village	do				106	
Petakou's village	do				24	

Southeastern division—Continued.

Settlement.	Location.	Total.	White.	Creole.	Thlinket.	Hyda.
Stakhin tribe.						
Shustak's village	Etholin Island	317			38	
Kash's village	do				49	
Shakes's village	do				38	
Towayat's village	do				82	
Kohltiene's village	Stakhin River				28	
Hinauhan's village	do				31	
Kadishan's village	do				27	
Shallyany's village	do				24	
Prince of Wales Island tribe.						
Kouyou	Prince of Wales Island, west coast.	587			60	
Hanega	do				500	
Klawak	do				27	
Tongas tribe.						
Village	Island mouth Portland Canal	273			173	
Cape Fox	Prince of Wales Island				100	
Sitka tribe.						
Sitka, Indian village	Baranof Island	721			540	
Silver Bay					39	
Hot Springs					26	
Indian River					43	
Old Sitka					73	
Yakutat tribe.						
Scattered villages between Cape Spencer and Bering Bay.	Coast of mainland	500			200	
Yakutat	Bering Bay				300	
Hyda tribe.						
Kassan and Skowl	Prince of Wales Island	788				173
Klinquan	do					125
Koianglas	do					62
Howakan	do					287
Shakan	do					141
Total native		7,225			6,437	788
WHITES AND CREOLES.						
Wrangell	Etholin Island	106	105	1		
Shuck	Stephens Passage	10	10			
Soundun	Holkhan Bay	10	10			
Shakan	Prince of Wales Island	8	5	3		
Old Sitka	Baranof Island	6	6			
Sitka	do	376	157	219		
Kassan	Prince of Wales Island	7		7		
Total white and creole.		523	293	230		
Grand total		7,748	293	230	6,437	788

The superficial area of this island division is, as nearly as it can be computed from the limited data at my command, about 28,980 square miles. This would give a density of population of 1 inhabitant to nearly 4 square miles. The ratio of civilized (white and creole) population was, in 1880, 1 to 55½ square miles. This element is now probably three times as numerous, or 1 to 19 square miles. The Thlinket and Hyda, however, are very susceptible of civilization, and are rapidly advancing in their social status, thanks to the efforts of missionaries and the contact with Caucasian miners and traders.

Recapitulation of the population of Alaska.

Division.	Total.	White.	Creole.	Eskimo.	Aleut.	Athabaskan.	Thlinket.	Hyda.
Arctic	3,094	.....	.....	3,094	.....	.....	.....	.....
Yukon	6,870	18	19	4,276	.....	2,557	.....	.....
Kuskokvim	8,911	3	111	8,036	255	506	.....	.....
Aleutian	2,451	82	479	.....	1,890	.....	.....	.....
Kadiak	4,352	34	917	2,211	.....	864	326	.....
Southeastern	7,748	293	230	.....	.....	.....	6,437	788
Total	33,426	430	1,756	17,617	2,145	3,927	6,763	788

The earliest actual count of any Alaskan people now on record was made by Delarof (an agent of the Shelikhof Company) in the year 1792. This count comprised all the villages on Kadiak Island and the settlement of Yukatmak (Katmai), on the Aliaska Peninsula. The number then given was 6,510 of both sexes, as against Shelikhof's estimate of 50,000, made only six years before that date. Four years later, in 1796, Baranof counted 6,200 inhabitants on Kadiak Island and the opposite coast of Aliaska Peninsula.

On the Aleutian Islands, Panof, a trader, claimed to have counted 1,900 inhabitants as early as the year 1781, but this was only a verbal statement transmitted by others. In 1792 Captain Sarychef, of the Billings exploring expedition, who had been instructed to enumerate the natives, reported the population of the Aleutian Islands as 2,500 of both sexes, but the result of an actual count made by order of the imperial chamberlain, Rezanof, resulted in the number of 1,942, approximating closely the estimate of Panof, made over twenty years before.

At the time of Baranof's retirement from the management of the Russian colonies in America, his temporary successor, Captain Hagemeister, of the Russian navy, ordered an enumeration of the natives. This count included, of course, only those tribes over whom the Russian-American Company had absolute control. Of this partial census we have two returns, differing slightly in the totals. One was first published in the report of an imperial inspector, Kostlivtzof, who dated it 1818, which reads as follows:

Native population of Russian colonies in America in 1818.

District.	Total.	Male.	Female.
Kadiak	3,430	1,484	1,769
		142	35
Aliaska Peninsula	869	402	467
Kenai (Cooks Inlet)	1,471	723	748
Chugach (Prince William Sound)	477	172	188
Oughalentse (Prince William Sound)		51	66
Mednovtse (Copper River)	567	294	273
Fox Islands (Aleutian)	1,469	463	559
Pribilof Islands (Aleutian)		188	191
Aleutian		42	26
Total	8,283	3,961	4,322
Russians	354	344	10
Creoles	256	147	109
Aggregate	8,893	4,452	4,441

No estimate of the Thlinket or Kolosh accompanied this document.

The other return of the same enumeration was published by Tikhménief in his Historical Review, and dated 1819. It is as follows:

Native population of Russian America in 1819.

District.	Total.	Male.	Female.
Kadiak district	3,252	1,483	1,769
Aliaska Peninsula	869	402	467
Chugach (Prince William Sound)	477	172	188
Oughalentse (Prince William Sound)		51	66
Fox Islands (Aleutian)	1,748	464	559
Pribilof Islands (Aleutian)		188	191
Aleutian laborers at Sitka		285	61
Kenai (Cooks Inlet)	1,471	723	748
Mednovtse (Copper River)	567	294	273
Total	8,384	4,062	4,322
Russians	391	.....	.....
Creoles	244	.....	.....
Thlinket or Kolosh (estimate)	5,000	.....	.....
Aggregate	14,019	.....	.....

The discrepancies between these two returns are small, and are easily accounted for by the difference in date.

Three years later, in 1822, another return placed the native population under control of the company at 8,286.

Next in chronological order comes a population return of the Russian colonies in America, forwarded by Chief Manager Baron Wrangell, under date of January 1, 1825, as follows:

Island.	Total.	Male.	Female.
Kadiak Island	2,819	1,351	1,[illegible]
Aliaska, coast opposite	199	99	[illegible]
Ookamok Island	88	51	[illegible]
Chugach (Prince William Sound)	1,562	782	[illegible]
Kenai (Cooks Inlet)	1,299	636	[illegible]
Nushegak (Bristol Bay)	671	306	[illegible]
Ililuliuk (Unalaska Island)	333	152	[illegible]
Chernovsky (Unalaska Island)	43	21	[illegible]
Borka (Unalaska Island)	27	11	[illegible]
Oumnak Island	137	62	[illegible]
Oonalga Island	11	3	[illegible]
Akutan Island	36	18	[illegible]
Akoon Island	139	59	[illegible]
Avatanok Island	43	22	[illegible]
Tigalda Island	52	24	[illegible]
Oogamok Island	49	19	[illegible]
Aliaska, adjoining coast	207	118	[illegible]
Oonimak Island	99	45	[illegible]
Sannakh Island	101	43	[illegible]
Ounga Island	50	25	[illegible]
Atkha Island	130	63	[illegible]
Chugal Island	62	29	[illegible]
Adakh Island	198	104	[illegible]
Amchitka Island	42	14	[illegible]
Attoo Island	97	45	[illegible]
Total	8,481	4,102	4,37[illegible]

This count also includes only the natives under control of the [illegible]om-pany, ignoring the Thlinket, and must be ascribed to Veniam[illegible]inof during the first year of his sojourn on the Aleutian Islands. Acc[illegible]ord-ing to this statement, the aggregate of Aleutian tribes was then 1,850 of both sexes, while that of Kadiak and the adjoining coast of the Aliaska Peninsula was 3,097, figures which do not agree with a com-

parative statement of population of these two sections published in 1830, and also ascribed to Veniaminof, as follows:

Year.	Kadiak and Aliaska.	Year.	Aleutian Islands.
1792	6,510	1781	1,900
1806	3,944	1806	1,898
1817	4,198	1813	1,508
1821	3,649	1825	1,478
1825	3,396	1830	1,450

From this it will be seen that the aggregate population of the two districts in 1825 was nearly the same as that given in the preceding table of Wrangell, though the distribution differs somewhat.

In the year 1831 the same priest, Veniaminof, made a careful count of the Aleutian people, which may be considered as authentic. The result of his investigations was a tabular statement, arranged by villages and islands, giving also the number of houses and canoes in each settlement. I can not do better than republish it in full:

Census of Unalaska district in 1831.

Island.	Village.	Inhabitants.			Houses.	Canoes.
		Male.	Female.	Total.		
Unalaska	Iliuliuk	90	106	196	27	15
Do	Natuikinsk	6	9	15	2	2
Do	Pestriakof	18	21	39	5	4
Do	Vesselovsky	7	8	15	3	3
Do	Makushin	15	20	35	6	5
Do	Koshigin	18	23	41	3	9
Do	Chernovsky	20	24	44	4	10
Do	Imagnak	15	17	32	4	2
Do	Kalekhta	6	8	14	2	2
Do	Bobrovskaia	21	20	41	4	6
Total Unalaska (10 villages).		216	256	472	65	58
Oumnak	Recheshnaia	38	45	83	13	12
Do	Tulik	11	15	26	3	6
Total Oumnak (2 villages)		49	60	109	16	18
Akoon	Artelnaia	16	16	32	7	9
Do	Recheshnaia	19	18	37	5	3
Do	Srednaia	7	9	16	2	4
Total Akoon (3 villages)		42	43	85	14	21
Pribilof	St. George and St. Paul	88	94	182	.....	.....
Borka	Sidanak	17	27	44	6	7
Oonalga	Oonalga	10	13	23	3	4
Avatanok	Avatanok	24	25	49	5	9
Akutan	Akutan	6	7	13	2	1
Tigalda	Tigalda	38	59	97	6	14
Oonimak	Shishaldin	38	53	91	2	4
Ounga	Delarof	52	64	116	13	15
Total small islands (9 villages).		273	342	615	37	54
Aliaska Peninsula	Morshevoi	16	29	45	7	6
Do	Belkovsky	49	53	102	10	16
Do	Pavlovsk	28	31	59	8	9
Total Aliaska Peninsula (3 villages).		93	113	206	25	31
Scattered at Sitka and elsewhere		10	18	28	.....	.....
Grand total of district		683	832	1,515	157	182

This table gives us the proportion of nearly 10 inhabitants to each house, 8 inhabitants to every canoe, and 1 canoe to between 3 and 4 male inhabitants (about 1 canoe to every two adults). The excess of females over males was nearly 10 per cent.

In the year 1835 the same priest, then stationed at Sitka, made a close estimate of the Kolosh or Thlinket of southeastern Alaska, which seems remarkably accurate in its total, though some of the villages enumerated by Veniaminof are not known to us now. He divided the Thlinket into 16 villages or clans, as follows:

Estimate of Kolosh in 1835.

1. Yakutat village	150	10. Kuyutzk	150
2. Ltuia or Avetzk	200	11. Henu (Hunyah or Hanega?)	300
3. Icy Strait (Cross Sound)	250	12. Stakhin	1,500
4. Chilkat (Lynn Canal)	200	13. Tongass	150
5. Akut (Auk)	100	14. Kaigan (Hydan)	1,200
6. Sitkha	750	15. Chassin	150
7. Takoo	150	16. Sanakhan	100
8. Hootznoo	300		
9. Kehk	200	Total	5,850

In 1839 Veniaminof made another estimate, including the total population of the country now called Alaska. He wrote as follows:

The northwestern part of America, from Bering Strait to the meridian of Mount St. Elias, or 141° west of Greenwich, and all the islands situated along the coast of America farther to the eastward, and a portion of the mainland, to a distance of 50 versts from the seashore, down to longitude 130° and latitude 50°, belongs to Russia, and is bounded on the east by the British possessions. Our America is peopled by a multitude of tribes and races, the number of which is of course unknown to us, but as far as the names of tribes in our part of America have been ascertained they are as follows:

1. The Kolosh, inhabiting the islands and the narrow strip of the American Continent at the extreme southeastern limits of the Russian possessions, whose number is now about 5,000
2. The Oughalentze, living near Mount St. Elias, numbering not more than. 150
3. The Mednovtze, who live on Copper River, to the number of 300
4. The Kolchane, living far away in the interior of the continent, near our boundaries; their number is unknown.
5. The Chugach, living on the gulf of the same name, numbering now ..... 47[illegible]
6. The Kenaitze, living on the shores of the Gulf of Kenai, numbering .... 1,62[illegible]
7. The inhabitants of the southern shore of the Aliaska Peninsula, numbering ..... 1,60[illegible]
8. The Aglegmute, on the northern shore of Aliaska Peninsula, numbering .. 40[illegible]
9. The Kadiaks, or Koniagi, living on the island of Kadiak, numbering ..... 1,50[illegible]
10. The Unalaskans, or Aleuts, inhabiting the Fox Islands and a portion of the Aliaska Peninsula, numbering ..... 1,49[illegible]
11. The Atkhans, or Atkha Aleuts, inhabiting the Andreanof islands, numbering ..... 7[illegible]
12. The Kuskokvims, living on the river Kuskokvim, which empties into Bering Sea, numbering about ..... 7,0[illegible]
13. The Kvikhpaks, Kiatentze, Malegmute, and other tribes inhabiting the shores of Bering Sea and the rivers emptying into the same, and also the coast of the Northern Ocean, whose number can not be less than all those above mentioned together.

To this native population of Russian America we must add Russians living in the various settlements, to the number of ..... [illegible]

Creoles—that is, the offspring of Russians from native American mothers—who form the foundation for a class of American citizens of Russia, numbering ..... 1,[illegible]

Consequently our total population in America may be given as follows:

Known and counted	10,[illegible]
Known, but not counted	12,[illegible]
Estimated only	17,[illegible]
Making a total of	39,[illegible]

Though objection may be made to certain details of this estimate as incorrect, the total comes sufficiently near to our latest data to convince us that Veniaminof had then a better conception of the population of Russian America than the compilers of the official reports of the Russian-American Company, exhibited during many succeeding years.

Next in chronological order we find an enumeration of the Thlinket and Hyda tribes of Alaska, made under the auspices of Sir James Douglas, of the Hudson Bay Company, in the year 1839, when the latter firm had obtained from the Russian-American Company a ten years' lease of the continental coast between Lynn Canal and the southern boundary. This document was never printed, but has been preserved in the archives of the Hudson Bay Company and in Sir James Douglas's private papers. Its figures are somewhat in excess of Veniaminof's estimate, but approach more closely to our most recent enumeration. The names of tribes and clans, as given by Douglas, can not all be identified now, but the whole table, circumstantial as it is in its classification of adults and children of both sexes and even of slaves, bears the imprint of authenticity. Subjoined I give it in full, as copied from the manuscript journal:

Census of native tribes of Russian America between latitude 59° and 54° 40′ N., exclusive of the Sitka tribe on Baranof Island, in 1839.

Traders' names of tribes.	Native tribal names.	Locations.	Total.	Adults.		Children.		Slaves.	
				Men.	Women.	Boys.	Girls.	Male.	Female.
Chilcat	Chilkhaat	Lynn Canal	498	167	116	71	66	42	36
Cross Sound	Hoonyah	Cross Sound	782	258	234	108	88	40	54
Auke	Auke	North of Takoo River.	203	72	61	35	31	2	2
Tako Samdan	Tako, Samdan, Sitka	Takoo River, Sitka River.	493	127	110	71	66	59	60
Hoochenoo	Hootanoo	Hood's Bay	729	247	240	85	76	40	41
Hanega	Henega	Prince of Wales Island	209	82	80	29	27	27	24
Kake	Kehk	Kehk Archipelago	393	109	106	70	64	24	20
	Stakhin:								
Stikeen	Liknaahutly	Stakhin River	118	31	24	30	27	2	4
Do	Ta-ee-teeton	do	93	38	29	10	9	3	4
Do	Kvaskaguatee	do	135	59	41	10	6	6	13
Do	Kukatu	do	234	97	67	36	32	2	....
Do	Naaniagh	do	390	83	117	60	46	32	52
Do	Talguatee	do	169	52	51	27	33	2	4
Do	Kiksatee	do	99	31	21	21	18	4	4
Do	Kadi-ettee	do	172	61	60	20	19	4	8
Port Stuart	Ahialt	Port Stuart	186	50	45	42	49	....	....
Tourgass	Kitahoonet	Clarence Strait	315	85	90	60	65	6	9
Cape Fox	Lukhselee	Cape Fox	177	45	50	39	43	....	....
Kaigani	Youahno	Prince of Wales Archipelago.	234	68	70	44	52	....	....
	Clickass	do	417	98	105	102	112	....	....
	Quishanless	do	148	30	35	42	41	....	....
	Howguan	do	458	117	121	113	107	....	....
	Shaaguan	do	229	53	61	54	61	....	....
	Chachini	do	249	65	62	59	63	....	....
Total			7,190	2,125	1,996	1,238	1,201	295	335

From this time forward the biennial reports of the Russian-American Company to the imperial ministerium of commerce gave the population of the Russian possessions in America as from 56,000 to 70,000. No authority for these statements existed, but they were repeated again and again until the sale of the country to the United States, though in the meantime several enumerations were made showing a very different result.

The first enumeration of the tribes on Norton Sound and on the lower Yukon, or Kvikhpak, was accomplished by Lieutenant Zagoskin, of the

Russian navy, during an exploration of that region in the years 1842, 1843, and 1844. It is, of course, impossible at this date to recognize all the names of villages given by Zagoskin, but as far as I can trace his count to personal observation, it appears to have been accurate. His exploration took place just after the whole region traversed by him had been depopulated by smallpox. In the table which is here reproduced, Zagoskin's division of the people into Christians and pagans has been omitted:

Enumeration by Lieutenant Zagoskin, I. R. N., of natives of Norton Sound and Lower Yukon in 1842, 1843, and 1844.

Tribes and villages.	Houses.	People.	Total.
KANG-YULIT PEOPLE [INNUIT].			
Chnagmute tribe, Norton Sound.			
Oonalaklik village	2	13	
Nigvilnuk village	1	5	
Kikhtaguk village	3	28	
Tachik village	3	19	
Atkhvik village	4	57	
Tikmikhtalik village	4	45	
Pashtolik village	7	116	
Total Chnagmute	24	283	283
Kvikhpagmute, Kvikhpak River.			
Kavlanagmute village	1	11	
Nigikligmute village	1	13	
Kanigmute village	4	45	
Aukachagmute village	6	122	
Takchagmute village	3	40	
Ikuagmute village	6	130	
Nukhluagmute village	4	60	
Ikogmute village	5	92	
Ikaligvigmute village	3	45	
Paimute village	5	123	
Total Kvikhpagmute	38	681	681
Kuskokvigmute, Kuskokvim River.			
Khalkagmute village	5	120	
Ookhagmute village	4	61	
Tulukagnagmute village	5	90	
Kvigimpainagmute village	4	89	
Total Kuskokvigmute	18	360	360
Total Kang-yulit	80	....	1,324
TTYNNAÍ PEOPLE [TINNEH].			
Yunakhotana, Kvikhpak River.			
Noggai village	1	10	
Minkhotliatno village	3	46	
Total Yunakhotana	4	56	56
Yunnakakhotana, Koyukuk River.			
Notaglita village	3	37	
Tlialilkakat village	3	27	
Tashoshgon village	2	30	
Tok-khakat village	1	6	
Nok-khakat village	3	50	
Kakhliakhliakat village	2	26	
Tsonagogliakhten village	1	11	
Tsogliakhten village	1	7	
Khotilkakat village	4	65	
Oonilgachtkhokh village	2	17	
Nulato village	1	13	
Total Yunnakakhotana	23	289	289
Inkilik tribe, Kvikhpak River.			
Kunkhogliak village	2	11	
Oolukak village	4	35	
Tuttago village	2	32	
Kakagokhakat village	1	9	
Khutulkakat village	2	16	
K-khaltat village	1	9	
Khogoltlinde village	4	60	
Takaiak village	7	81	
Khulikakat village	1	11	
Total Inkilik	24	264	264
Tlegonkhotana, Tlegon River.			
Innoka village	3	44	
Ttalitui village	3	45	
Total Tlegonkhotana	6	89	89
Yugelnut, Kvikhpak, and Kuskokvim rivers.			
Inselnostlende village	2	33	
Khuingitatekhten village	3	37	
Iltenleiden village	6	100	
Tlegoshitno village	3	45	
Khuligichakat village	5	70	
Kvigimpainagmute village	3	71	
Vashichagat village	5	80	
Anvig village	5	120	
Makki village	3	44	
Anilukhtakpak village	8	170	
Total Yugelnut	43	770	770
Goltzana, interior.			
Khunanilinde village	1	9	
Tochotno village	1	9	
Total Goltzane	2	18	18
Total Ttynnaí	102	....	1,486
Total Kang-yulit	80	....	1,324
Grand total	182	....	2,810

The importance of Zagoskin's population statistics is altogether of a relative nature. He simply counted those whom he came in contact with, and made no estimates of people living away from his line of progress; hence I can make no comparison between his data and mine. But from this partial return it is seen that, then as now, the villages in

the vicinity of the seacoast were more populous than those of the interior, and that the houses of the Tinneh tribes must be of almost the same capacity as those of the Innuit. Of the former Zagoskin counted 1,486 living in 102 houses, making an average of nearly 15 inmates to each dwelling, while the Innuit counted by him numbered 1,324 in 80 houses, an average of a little over 15 to each dwelling. Among the Innuit the average number of dwellings in each village is nearly four, while the Tinneh villages average less than three.

From this time forward until the year 1860 no population returns of Russian America were published, with the exception of the fictitious total of 56,000 contained in the brief biennial reports of the Russian-American Company, referred to above.

In 1860 the Holy Synod, the highest ecclesiastical authority in Russia, published in its annual report a census of Christians in Russian America, as furnished by the priests and missionaries stationed in the colonies. This included nearly all the natives under immediate control of the company, and was as follows:

Christians in Russian America in 1860, exclusive of Russians.

Tribe.	Total.	Male.	Female.
Creoles	1,676	853	823
Aleut (including Kaniags)	4,391	2,206	2,185
Kenaitze	937	430	507
Chugach	456	226	230
Mednovtze	18	17	1
Magmute	19	18	1
Aglemute	39	19	20
Aziagmute	206	105	101
Kuskokvims	1,395	755	640
Kvikhpaks	379	226	153
Agulmute	39	19	20
Ingalik	476	263	213
Koltchan	190	97	93
Koloshians	447	221	226
Total	10,668	5,455	5,213

In 1861 Lieutenant Wehrman, of the Russian navy, but then in the employ of the Russian-American Company, compiled a census of the Kolosh or Thlinket tribes by settlements. Wehrman gave the number of free males and females and male and female slaves separately. The appended reproduction of Wehrman's table will show plainly that he obtained only the totals at each place and divided them subsequently:

Thlinket (Kolosh) population in 1861.

Village.	Total.	Free.		Slave.	
		Male.	Female.	Male.	Female.
Sitka villages	1,344	715	585	51	43
Khutsnoo villages	600	280	280	20	20
Chilkhat villages	1,616	728	728	80	80
Kake villages	445	210	210	13	12
Takoo villages	712	335	337	20	20
Hoonyah villages	411	195	197	10	9
Tongass villages	333	154	154	13	12
Cross Sound villages	331	154	154	13	10
Assan Harbor villages	118	56	56	3	3
Kuyutak villages	262	126	126	5	5
Stakhine villages	697	308	308	41	40
Kaigan villages	758	280	280	99	99
Ltuia villages	590	265	267	29	29
Yakutat villages	380	163	168	25	24
Total	8,597	3,969	3,800	422	406
Total free	7,769				
Total slave	828				

If the totals of the above table be correct, there appears to have been no increase or decrease in the numbers of Thlinket during the twenty years intervening between the count of Wehrman and that of Sir James Douglas, the latter having arrived at a total of 7,190 exclusive of the Sitkan clan, which numbers 1,344 in Wehrman's table.

During the last few years of the Russian-American Company's existence the population returns made by various colonial and inspecting officers appear very much confused. Thus we have two counts dated January 1, 1862, showing the same total, but differing very much in distribution. Both counts are incomplete, ignoring the Thlinket and nearly all the northern natives. One enumerates the people by race and tribe, the other by districts. They were printed by Tikhmenief in his Historical Review as follows:

Russians	577	Sitka district	988
Foreigners	6	Kadiak district	5,985
Creoles	1,892	Unalaska district	1,359
Aleut (including Kadiaks)	4,752	Atkha district	972
Kenaïtze	927	Kurile district	253
Chugach and Atnah	719	Northern district	545
Kuskokvims	1,283	Kenaï district	54
	10,156		10,156

In Tikhmenief's work no explanation is given that might enable us to analyze these puzzling figures. For instance, the 1,283 Kuskokvims could only be counted with the northern district, but the total of that district is given in the other list as only 545.

In 1863, in the second volume of his work, Tikhmenief published a table with the following heading: "Population statistics of inhabitants of Russian America dependent upon and actually counted by the Russian-American Company," as follows:

January 1—		January 1—	
1830	10,327	1847	7,874
1831	10,423	1848	8,707
1832	10,493	1849	8,892
1833	10,800	1850	9,061
1834	10,670	1851	9,273
1835	10,867	1852	9,452
1836	10,989	1853	9,573
1837	11,022	1854	9,514
1838	10,313	1855	9,660
1839	8,070	1856	9,725
1840	7,574	1857	9,792
1841	7,580	1858	10,075
1842	7,470	1859	9,902
1843	7,581	1860	10,121
1844	7,896	1861	10,136
1845	7,224	1862	10,156
1846	7,783	1863	10,125

This list ought to agree with the number of Christians reported by the Holy Synod, but in the year 1860, for instance, the priests and missionaries reported 547 Christians in excess of the "total counted" of the Russian-American Company. The above table is of importance chiefly as showing the effects of the smallpox epidemic, which appeared in the Russian colonies in 1837. During the first two years the loss was nearly 3,000, and the population gradually decreased from 11,022 in 1837, reaching its lowest point, 7,224, in 1845. During the second year of the epidemic the mortality was greatest, over 2,000; but it must be remembered that these figures relate only to those natives under the immediate control of the company and accessible to medical treatment and

vaccination. If the mortality in these favored sections was 20 per cent, it is safe to assume that in the remote regions of the north, in the densely peopled districts of the Yukon, Kuskokvim, and Bristol Bay, it must have been fully 50 per cent, if not more. This assumption is borne out fully by the evidence of native tradition and ruins of depopulated and abandoned villages still in existence. The abandoned village sites in the Yukon and Kuskokvim valleys far outnumber the settlements now inhabited, and whole populous villages were converted into cemeteries by the burial of the dead in their own dwellings. Such funereal towns are still frequently met with in the whole coast region of Alaska west of Mount St. Elias. Among the Thlinket tribes, who practice cremation, the losses must have been equally great, but with them no traces of the universal calamity of nearly half a century ago remain, except in the blind and pockmarked persons of the few aged of both sexes.

We have still another count of inhabitants of Russian America, published in 1863 by a special inspector of the imperial government, Kostlivtzof, as follows:

Inhabitants of Russian America January 1, 1863.

Tribe.	Male.	Female.	Total.
Creoles	925	971	1,896
Aleut	1,236	1,192	2,428
Kenaitze	430	507	937
Kadiaks	1,115	1,102	2,217
Chugach	226	230	456
	3,932	4,002	a 7,934
To this Kostlivtzof added an estimate of Atnahs or Copper River natives			2,500
And Koloah or Thlinket			20,000
Total			30,434

a This is 2,191 less than the company's total for the same year, but the Russians and northern natives were omitted.

About as good an estimate as Veniaminof made over twenty years previously, if we except the classification. By reducing his estimate of Atnahs to 500, and that of Thlinket to 8,000, and classing 14,000 as northern natives, Kostlivtzof would have been nearer the truth and still within his own estimate of the total population of the present Alaska.

To show the extravagant estimates of the population of Alaska made at the time of its acquisition by the United States, I quote the following tables from the reports of Major-General Halleck, United States Army, and of Rev. Vincent Collyer, both made in the year 1868:

Major-General Halleck's estimate of population of Alaska.

Koloshians: Hydas	600	[Thlinket]—Continued.	
[Thlinket]:		Chilkahts	2,000
Henegas	500	Hoodsnahoos	1,000
Chatsinas [?]	500	Hunias	1,000
Tongass	500	Sitkas	1,200
Stickeens [Stakhin]	1,000	Hyaks	15,000
Kakes [Kehk]	1,200	Kenaians [Athabaskans]	25,000
Kous [?]	800	Aleutian	10,000
Koutznous	800	Eskimo	20,000
Awks	800		
Samdam Takos	500	Total	82,400

The Rev. Vincent Collyer, in his report to the Commissioner of Indian Affairs, reproduced General Halleck's wild estimate, and added

a special estimate of the number of Kolosh or Thlinket, furnished by a trader, Mahoney, who certainly ought to have been better informed:

Mahoney's estimate of Thlinket.

Bering Bay:	
Yakutat	300
Stikine	1,200
Tongass	800
Admiralty Island:	
Auk	750
Cross Sound:	
Whinega[?]	500
Whinega (interior)	800
Chilkaht Inlet:	
Chilkaht	2,500
Chilkaht Inlet—Continued.	
Anega[?]	300
Stephens Passage:	
Takos	2,000
Sitka	1,000
Admiralty Island:	
Hoodsinoo	1,000
Kake	750
Total Thlinket	11,900

General Halleck's table, in addition to a general overestimate, contains such duplications as "Koutznoo" and "Hoodsnahoo," both the same tribe; "Kakes" and "Koos," also the same, and 15,000 "Hyaks," an imaginary tribe.

A single glance at any map of southern Alaska will reveal the utter absurdity of the Collyer-Mahoney estimate.

EDUCATION.

On the subject of education in Alaska but little is to be said. Under the administration of the Russian-American Company schools were maintained at various stations, under the personal superintendence of the trader or agent, in which children of both sexes were taught during the winter season. Many competent copyists, clerks, and bookkeepers were furnished from these district schools. At Sitka these establishments were conducted on a more pretentious scale, with competent teachers (generally selected from naval and petty officers), scientific apparatus, and facilities for studying navigation. This was a great step in advance from the first primary class, established on Kadiak Island in 1784 by Grigor Shelikhof and his wife; but from the beginning to the end of the Russian company's rule that corporation, while apparently complying to the letter with the requirements of its charter relative to the maintenance of schools, arranged all educational facilities offered to the natives of Alaska with the sole object of benefiting the business of the company rather than with that of educating the people. Bright youths among the creoles (offspring of Russian fathers and native mothers) were carefully trained in navigation and the mechanic arts, but they were compelled to remain in the company's service for fifteen years after finishing their course of instruction. Competent masters of vessels, mechanics, and bookkeepers were thus secured at small expense and firmly bound to the company's interests, as there was no danger of their leaving the service if dissatisfied. Creole girls in limited numbers were trained to become housekeepers and wives of the employees of the company, who were thus prevented from leaving the colonies. To the masses of the native population, however, educational facilities were not extended, as none of the Russian missionary stations maintained a school except for the training of children of the clergy. There was a seminary at Sitka for several years, in which many of the creole and native priests now officiating in Alaska received their first instruction, but this establishment was subsequently removed to Kamchatka. In the creole settlements of the Kadiak and Aleutian districts parents taught their children to write a little and read the catechism, prayers, and a few chapters of

the Bible in the Russian language or one of the native dialects, and this rudimentary education is still found to exist in many of the isolated communities. Nearly all these schools were discontinued some years previous to the transfer of the country to the United States, when the Russian company was endeavoring to relieve itself from the maintenance of schools, churches, and local government.

At present the only schools in all western Alaska where English is taught are on the Pribilof Islands and at Iliuliuk settlement, Unalaska, both being maintained at the expense of a trading firm. The daily attendance in the seal islands (Pribilof) schools is kept up to an average of 56 on St. Paul Island and 16 on St. George, through the constant efforts of Government agents stationed on the islands. At Unalaska, a village of nearly 300 inhabitants, the attendance varies from 10 to 20. Two other schools, where Russian only is taught, are reported at Belkovsky, in the Aliaska Peninsula, and at Alexandrovsk, on the Nushegak River, with an average attendance of 6 for each. But in spite of these poor facilities, settlements like Kadiak, Belkovsky, Iliuliuk, and Afognak, where the creole element prevails, furnish an exhibit of from 50 to 75 per cent of the population able to read and write in Russian or the native vernacular, or both. This is all that can be said concerning education in western Alaska.

In southeastern Alaska quite a different and more promising state of affairs exist. Here the Presbyterian Board of Missions has done much in the way of establishing schools and furnishing teachers for the same, and under its auspices a school and a home for girls have been maintained at Wrangell. The former institution has a daily attendance of from 60 to 100 pupils, while the home contains 30 inmates.

At Sitka a school was established in April, 1878, also under the auspices of the Presbyterian mission, with two teachers, which school is still in operation, with an average daily attendance of from 100 to 150. With the assistance of the naval commander at Sitka a school was opened there in 1879 for the benefit of the Russian-speaking children whose parents felt scruples about sending their children to sectarian schools of another denomination. The attendance in this school is reported to average from 45 to 55.

At present the Presbyterian missionaries have schools in operation in the Chilkaht villages, on Lynn Canal, at the principal Hoonyah village on Cross Sound, and also at Kaigan, on the south end of Prince of Wales Island, among the Hyda tribe.

A number of native Alaskan youths have also been received into the United States Indian school at Forest Grove, Oreg., but thus far they have all been selected from the pagan tribes of southeastern Alaska by the Presbyterian missionaries, while the bulk of native Alaskan population, located in the west, has been totally neglected. The natives and creoles all along the coast, from Mount St. Elias westward, are too strongly wedded to the faith of the Greek Orthodox Church (adopted by their forefathers nearly a century ago) to take kindly to sectarian schools of another denomination.

The Russian Church claims on its registers 10,950 members, distributed as follows:

Sitka parish	275	Pribilof parish	372
Unalaska parish	1,364	Nushegak mission	2,848
Belkovsky parish	633	Yukon mission	2,252
Kadiak parish	2,606	Kenai mission	600

Of these numbers at least half of those counted with the northern missions, or 2,500, may be safely stricken off as fictitious; 1,013, the

creoles, are semicivilized, a small percentage being able to read and write, while the remainder are savages to all intents and purposes.

In the discussion of this subject, embodying as it does a vital interest to the people of Alaska, we are brought face to face with many natural and some artificial difficulties. In the first place, the limit to which a savage people, forced by all the pressure of a higher civilization, will progress has been repeatedly marked in the examples recorded of the educational disappointments and successes which have attended the efforts of our Government and our clergy to elevate the minds and advance the comfortable living of our own immediate aborigines. If the youth of Alaska are to be lifted above their existing low medium level, in our opinion the Government of the United States is the best able, from its position of strict neutrality among religious creeds, to promote the progress of simple elementary education among those people.

The Russian Church, which is the dominant ecclesiastical power in Alaska, is of course poor, comparatively speaking, necessarily so, and the great majority of these chapels are in the hands of natives and creoles, who are not members of the clergy. A somnolent organization is their chief constitution, and they drone through the exercises of the church as appointed, preside at its calendar days of festivity, and then retire seemingly exhausted and desirous of repose. If anything can be done to reach these men, to invigorate and stir them up, it must come from the individual supervision and orders of some active, zealous head of the church.

Among the 7,000 or 8,000 members of the Russian Church I have found less than 400 able to read and write in either the Russian, the Aleutian, or the Kadiak vernacular, though in the villages where parish churches are located quite 30 per cent of the people possess these rudiments of education.

Not one of the three missions of the Yukon, Nushegak, and Kenai possesses a school, and in the village immediately surrounding the former (which now has a native missionary) I found but one man outside of the attachés of the church who could even speak the Russian language. The late Bishop Nestor had planned the establishment of a training school for native boys from all parts of the Territory at Unalaska, but at his death the project was abandoned.

Among the Innuits are found a quickness of apprehension and a lurking spirit of inquiry which point them out as capable of being very much benefited by an intelligent system of educational labor, provided it can be established in their country. They are, if anything, brighter and more desirous of learning than the Aleutians themselves, who appear, as a people, to be degenerating, owing to the hybridization constantly going on in their country.

The natives themselves are quickened into appreciation of the benefits of an education when they observe the advantages which those among their number who are conversant in the method and manner of conducting trade and keeping accounts have over the rest, and see the advancement of these to positions of trust and confidence by the traders. This practical application reaches them fairly and fully, when the most eloquent and cogent advocate of the abstract advantages of education would fail to make the slightest impression or to arouse a passing interest in their minds.

All those who now read and write, principally their own language among the Aleutians as a class and the Kadiak people, have derived these elementary rudiments of instruction from the Greek Cathol

Church. The father who can read and write, as a rule, teaches his son, while the exercises of the church keep the lesson somewhat fixed in the juvenile mind.

At the location of all parish churches it is supposed or expected that schools will be maintained by the church authorities, but, as already mentioned, there is much laxity in this respect, and at least 20,000 natives are entirely without the remotest influence of church or school—a fact our boards of foreign missions might take into consideration.

Under existing circumstances the General Government could extend educational facilities only through the medium of the Indian Bureau, a branch of administration having as yet no foothold in Alaska. The extension of all the complicated and expensive machinery of that Bureau would be unwise, indeed, among tribes now entirely self-supporting and occupying no lands attractive to white men; but as an entering wedge, and an earnest of future civilization, fifteen or twenty youths might be chosen from various regions, instructed in some of the Indian schools (such as that at Carlisle, Pa., for instance), and, if found capable, trained as teachers in some normal school. Care should be taken in the selection of boys, who should be pure natives and not the offspring of traders and native women, in order to insure the desired future benefit.

Quite a large number of Aleutian youths have been, since the transfer, from one cause or another, taken down to San Francisco and the States east of the Rocky Mountains, and there educated, and in all instances of which I have knowledge they have invariably returned, if living, to the country of their birth. This is simply natural, and needs no extended explanation.

DISEASES.

Those diseases which are most fatal to life in one section of Alaska seem to be applicable to all the others. In the first place, the native children, as they grow up, have little or no parental supervision or care in regard to clothing, etc., from a purely sanitary point of view; for the little fellows, male and female, for the first few years of their lives are more often naked than clothed at all seasons of the year, though the little girls, as a rule, earliest receive their garments. Exposed as they are in their manner of living to drafts, to insufficient covering, and cold nooks for slumber, they naturally at the outset of their rude lives lay the foundation for pulmonic troubles in all their varied degrees. Consumption is therefore the simple and comprehensive title for that disease which destroys the greatest number throughout Alaska. The Aleut, the Indian, and the Eskimo suffer from it alike; and they all exhibit the same stolid indifference to its stealthy but fatal advancement—no extra care, no attempt to ward it off, protect, or shelter against it, not even until the supreme moment of dissolution.[1]

After consumption, perhaps the largest number of deaths may be ascribed to scrofulous diseases, which, taking the form of malignant ulcers, eat into the vitals and destroy them, rendering the people of whole settlements sometimes lepers in the eyes of the civilized visitor; and it is hard to find a settlement in the whole country where at least one or more of the families therein has not the singularly prominent

[1] A rather disgusting habit, common to all the uncivilized natives, may perhaps serve to spread the disease. Devoted wives carefully gather in cups or other receptacles the expectorations of their consumptive husbands (blood as well as matter) and swallow them.

scars peculiar to the disease. Most of this scrofulous complaint being on the surface of the patient's body, as it were, one would naturally look for some care and attention on the part of the sufferer toward the alleviation of his own misery, while with regard to consumption, that being more concealed and less disagreeable both to the native and his associates, they are not likely to notice it in the way of applying remedies; but, so far as I know, the same apathy exists among the natives with regard to the treatment of the latter. It is, of course, immensely aggravated and made more violent by their neglect and filthy habits.

Following these two great sources of disease and death may be enumerated quite a number of other ills, such as paralysis, inflammation of the bowels, a few cases of fits, and a rather abrupt ending of advanced middle-aged life from what is called "general debility;" or, in other words, these people, as a rule, live to no great age, as might be inferred from the method and exigencies of their life. When a man or woman rounds his or her fifty years, he or she is a rare example of the tribe; yet, if he or she is free from rheumatic troubles, or the death grasp of disease, it is never without injured vision; for it is a noteworthy fact that eye diseases necessarily arise from the smoky interiors of their barabaras and other places of residence, which, with the snow, so affect the eyes that the middle-aged are rarely without signs of decay, the various stages of granular ophthalmia being most marked.

For the prevention of snow blindness the Eskimo people use their peculiar goggles, but the greater evil of smoke poison to the ophthalmic nerve is not overcome by any of them. Nearly all of the traders have their medicine chests, and much relief and real kindness are extended by them to the suffering natives immediately about them wherever they are; but what they do or can do is a mere drop in the bucket. Hence it will be observed that the natives of Alaska are not a long-lived people, as a rule, and when a very old person is found among them he gives evidence of what must have been in youth a magnificent constitution.

The Indian, Eskimo, or Aleut has not, however, an exalted idea of our pharmacy; in other words, he appreciates only forcible treatment, and nothing else will satisfy him. As an example, of Epsom salts the traders are obliged to give, if they give any at all, to a suffering native, a great dose, or there is no effect whatever in the operation. Naturally the traders use only the very simplest remedial agent known to the apothecary. As a rule, however, of internal remedies, a child's dose ordinarily will act readily upon an adult native, while, on the other hand, applications to the skin—tinctures, liniments, etc.—must be of treble strength to produce the desired effect. For instance, tincture of iodine, to reduce swelling on an Alaska native's body, must be of such a strength that it would blister a Caucasian epidermis.

The natives themselves have no medicine whatever, nor any knowledge, as far as can be discovered, of any medicinal herb whatever—which is a very singular fact. All their lesser and slighter indisposition, arising from any natural cause, they treat by the universal and everlasting sweat bath. This is their panacea, and this is all, except when they call in the "shaman" to either worry the unhappy patient to death or to prolong his wretched existence for a period by stimulating perhaps an undue nervous tension, which causes the usually languid and resigned sufferer to rally, as it were, before the flame flickers out.

These people are certainly fatalists, and are wonderful in their patience when suffering all the ills that flesh is heir to in their lonely, desolate homes.

In addition to the troubles for which the natives themselves are responsible, dreadful consequences arose from the introduction of smallpox, through Russian intercourse, first in 1838 and 1839. This disease swept like wildfire up from its initial point at the confines of the southern limits of the Alexander Archipelago over the whole length of the Aleutian chain, Cooks Inlet, Bristol Bay, and Kuskokvim, fading out in the north, until entirely checked by the Arctic cold. It actually carried in its grim grasp one-half of the whole population of Alaska to an abrupt and violent death. In certain places it swept out the entire population, being exceedingly virulent among the Thlinket of the Alexander Archipelago. The physician who knows this, however, will readily understand how a people living as they have lived and yet live, with their strange apathy, ignorance of sanitary regulations, will be crushed before the onslaught of this disease. When La Pérouse visited this country, at Lityua Bay, he found natives (in 1786), to his great astonishment, marked by smallpox, which it seems the savages had contracted from a visit made to the coast to the southward by the Spaniards nine or ten years earlier; yet there is no definite knowledge that this epidemic in those early times even approximated the extent of the ravages of that which we have just cited. In 1843 and 1844 another outbreak of smallpox took place on the Aleutian Islands, but the people did not suffer as they had previously done, great numbers of them having been vaccinated by the Russians in the meantime.

Upon this point the only interest or attention which these people have given to our medical practice is manifested; they occasionally ask why the American Government does not send out its agents for the purpose of vaccinating their people, as the Russians did—a suggestion which, though late, may be timely.

Syphilitic disease was probably first introduced in Alaska by the Russians, though several writers claim that the scourge already existed in the Aleutian Islands when the Muscovite hunters made their appearance there. At any rate, Captain Cook records that several of his crew contracted the disease during their brief stay on Unalaska Island in the year 1778. Syphilis yet exists in all coast settlements, chiefly in the vicinity of stations visited by shipping, and also in the interior where the people have constant intercourse with the seaboard. It is found in all stages and degrees, being entirely neglected by the natives themselves, and only at a few trading centers, where wealthy firms maintain physicians, and perhaps in the towns of southeastern Alaska, is anything done to check its ravages.

Another imported plague among these people is due to the introduction of the measles, a simple trouble with us, but of fatal power with them, assuming, doubtless on account of the exigencies of the climate and the natives' methods of life, the "black" form. It first ravaged Kadiak Island and the mainland contiguous, on one or two occasions, and produced a panic also at Sitka. The climate of Alaska renders its treatment very difficult, and it is an exceedingly dangerous complaint there for those even who have the best of care and medical attention. The last extended occurrence of this disease took place during the winter of 1874–75, principally confined to the Kadiak Islands.

Typhoid pneumonia, also, from time to time has wasted whole settlements, chiefly on the seaboard. The creoles and natives seem to yield at once to this disease, making scarcely any effort to resist its progress. It assumes an altogether epidemic form, its advance being easily traced as it is carried from one village to another by trading vessels or canoes.

During the last few years the number of skilled sea-otter hunters has been reduced nearly one-half by this disease.

In the absence of all vital statistics, the question as to whether the natives of Alaska are increasing or decreasing in numbers is difficult to answer, but as an individual opinion it may be stated that the inhabitants of the Aleutian Archipelago, the peninsula, and Cooks Inlet are to-day nearly as numerous as they have been at any time since the destruction in 1838 and 1839, caused by the smallpox plague of that season. All authorities agree in saying that these people have never regained their former strength in point of numbers.

The Eskimo on the Arctic coast and St. Lawrence Island, utterly demoralized by the unchecked importation of spirituous liquors by whalers and traders, are rapidly decreasing under the alternate effects of wild intoxication and of starvation, the latter being the consequence of utter recklessness engendered by the former. Their extermination will probably follow that of the walrus—their staff of life—now being wantonly destroyed by thousands for ivory alone.

With reference to the Athabaskans of the interior and the Eskimo tribes south of Bering Strait it may be said that they seem to be as numerous now as they were twenty years ago, and that they probably number as many as the country will support, always bearing in mind their extraordinary wastefulness in seasons of plenty. Were they provident they might live by tens where a single one exists now.

The Thlinket of southeastern Alaska have perhaps the greatest vitality of any of the Alaskan tribes. At present they are under the influence of Presbyterian missionaries, and we may hope for a gradual amelioration in their mode of life and the introduction of some regard for sanitary measures. Living in more intimate relations and in constant and universal contact with Caucasians, the Thlinket are subject to the drawbacks as well as the advantages of such an association; but, taking everything into consideration, a rapid decrease of native population in this section of Alaska need not be apprehended, and there is possibility of increase in the future.

POLITICAL STATUS.

Alaska is now, and has been since its acquisition by the United States, "a thing which it is not," a Territory in name only, without its organization. It is a customs district, for the collection of customs only, with a collector and three deputies separated by hundreds and even thousands of miles. It has no laws but a few Treasury regulations, with no county or other subdivisions, and, of course, no capital. The collector of customs and the only representative of police restrictions—a man-of-war with its commander—are located at Sitka, cut off from all communication with the bulk of the Territory except by way of San Francisco.

In the strip of country between Cape Fox and Mount St. Elias, 300 miles long by from 30 to 60 miles wide, including islands containing about 29,000 square miles, there are at present possibly 1,500 whites and creoles able to perform the functions of citizenship, and 7,000 wild Indians; about enough for a small county organization.

In all the western region there are 139 white males and 5 females, including 3 boys and 1 girl. Though not speaking English, among the creoles might be found between 400 and 500 sufficiently intelligent to understand what constitutional government means, making an average of less than one possible citizen for every 600 square miles of superficial area, without regard to the fact that many of the men are foreigners.

The main difficulty of organizing or legislating for Alaska lies in the utter impossibility of reconciling the widely-diverging interests and wants of two sections, entirely separate geographically, and having no one feature alike, beside being very unequal in size. The general map accompanying this report will illustrate this at a glance. The only practical and economical solution of the question will be to treat each section separately.

A reference to the map will impress the observer with the vast distance, in many cases, from one settlement to its neighbor, rendering, as a rule, communication between the small villages and settlements of the Territory infrequent and rare, San Francisco being the central point for information received annually from the whole Territory; for instance, the people of Kadiak or Unalaska hear from and learn of any one in Sitka by the "Golden Gate," and vice versa.

The only official knowledge which the Government has or can have of the condition of affairs in Alaska has been and must be derived from the cruising of the revenue-marine steamers, and from the commander of the naval vessel stationed in the Alexander Archipelago, who monthly reports the natives "in all parts of Alaska" quiet and peaceable.

The mail line established between Sitka, Wrangell, and Port Townsend, in Puget Sound, is the only branch of the postal service extended over Alaska.

MEAN TEMPERATURE AT VARIOUS POINTS IN ALASKA.

The following table shows the means of temperature for the months of January and July at various points in the Territory:

	January.	July.
	°	°
Sitka	+30	+55
Tongas	+33	+58
Wrangell	+22	+58
Kadiak	+28	+57
Coast of Bering Sea	—10	+50
Yukon Basin	—26	+65
St. Michael	+ 3	+54
Pribilof Islands	+28	+46

A FEW REMARKS ON SPELLING OF RUSSIAN AND NATIVE NAMES.

In spelling the Russian and Alaskan names and terms throughout this report I have endeavored to represent Russian and native sounds by their true phonetic equivalents in the English alphabet.

The Russian names and words ending in *off*, *ow*, or *ov*, as heretofore variously spelled, should be written *of*, the pronunciation being exactly that of the English word "of," for instance, *Baránof*, *Veniamínof;* in the possessive case, however, or in the plural, the sound of "*v*" always takes the place of the "*f*," *c. g.*, *Baránova*, *óstrova*, etc.

In words like Kamchatka the letters *ch* represent the full phonetic value of the corresponding Russian letter. The old way of spelling it, Kamschatka, is purely German, and not to be tolerated in an English work.

The Russian and native strong aspirate, resembling somewhat the German *ch* in *Woche*, I have represented by *kh*.

Profiting by observance of linguistic defects in former publications

on Alaska I have abstained as much as possible from the use of Russian or native terms. The few such terms retained for the want of a good English equivalent are:

Barábara, a term of Siberian origin for a semisubterranean hut or dwelling.

Beluga, the white grampus or white whale.

Biddár, a Kamchatkan word, an open boat with a wooden frame and covered with seal, sea-lion, or walrus skin.

Bidárka, a skin canoe of the Aleutians, covered all over with the exception of one, two, or three circular openings, to accommodate as many paddlers.

Kaiak, Eskimo skin canoe.

Kamlëika, a Siberian term, waterproof shirt of seal, whale, or bear gut.

Parka, a Kamchatkan word, upper garment of fur, with small head opening and sleeves, varying in length.

Promyshlénik, a Russian word for fur hunters or laborers, now obsolete.

Shamán, a Kamchatkan term for sorcerer or medicine man, used by many tribes who once were subject to Russian influence.

Toyón, Kamchatkan term for chief, introduced by Russians. *Tuyúk* and *Tookoo* with Aleutians and other tribes.

Túndra, a Siberian term, a moor, morass, or swampy plain, producing a dense growth of mosses and grasses over a frozen subsoil and ice, which does not thaw to a greater depth than 18 inches below the surface.

Túngak, a term used by certain Eskimo tribes for a shaman or conjurer.

CHAPTER II.—RESOURCES.

The Territory of Alaska, so called, an area nearly equal to one-sixth of the whole United States and Territories, is a region to which the attention of the American people was very suddenly and earnestly directed in the summer of 1867, when it was secured as a measure of diplomacy and good will between the American and Russian Governments. The Russians, who occupied the land with an eye primarily to the fur trade and its dependencies, retired from that country, leaving us a generally correct map of the vast extent of rugged coast, locating its people in a measure correctly, with some facts and figures bearing upon the resources, natural history, and trade, which have since been found to be quite accurate, but which at the time of the transfer were so clouded and distorted by the advocates of the purchase and its opponents that the real truth in regard to the subject could scarcely be observed.

When the United States took possession of Alaska a great many active and ambitious men on the Pacific Coast were imbued with the idea that much that was really valuable in Alaska in the line of furs and the precious metals would be developed to their great gain and benefit if they gave the subject the attention which it deserved. Accordingly, many expeditions were fitted out at San Francisco, Puget Sound, and other points on the Pacific Coast, and directed to an examination of these reputed sources of wealth in that distant country. Thirteen years have rolled by, and in that time we have been enabled to judge pretty accurately of the relative value of this new Territory in comparison with that of our nearer possessions, and it is now known

that the fur-trade of Alaska is all and even more than it was reputed to be by the Russians.

In this connection the most notable instance, perhaps, of the great value of these interests may be cited in the case of the seal islands. It will be remembered that at the time of the transfer, when the most eloquent advocates of the purchase were exhausting the fertility of their brains in drumming up and securing every possible argument in favor of the purchase, though the fur trade of the mainland, the sea-otter fisheries, and the possible extent of trade in walrus oil and ivory were dwelt upon with great emphasis, these fur-seal islands did not receive even a passing notice as a source of revenue or value to the public. Yet it has transpired, since the Government has been wise enough to follow out the general policy which the Russians established of protecting the seal life on the Pribilof Islands, that these interests in our hands are so managed and directed that they pay into the treasury of the United States a sum sufficient to meet all the expenses of the Government in behalf of Alaska, beside leaving a large excess every year.

Of other resources, such as the adaptation of the country for settlement by any considerable number of our people as agriculturists or husbandmen, and its actual value as a means of supplying gold and silver, coal or timber, it must be said that as yet no very remarkable gold or silver mines have been discovered, nor have there been any veins of coal worked that would in themselves sustain any considerable number of our people or give rise to any volume of trade.

The timber of Alaska in itself extends over a much larger area of that country than a great many surmise. It clothes the steep hills and mountain sides, and chokes up the valleys of the Alexander Archipelago and the contiguous mainland. It stretches, less dense but still abundant, along that inhospitable reach of territory which extends from the head of Cross Sound to the Kenai Peninsula, where, reaching down to the westward and southwestward as far as the eastern half of Kadiak Island and thence across Shelikhof Strait, it is found on the mainland and on the peninsula bordering on the same latitude; but it is confined to the interior opposite Kadiak, not coming down to the coast as far eastward as Cape Douglas. Here, however, it impinges on the coast of Cooks Inlet, reaching down to the shores and extending around to the Kenai Peninsula. From the interior of the peninsula above referred to the timber line over the whole of the interior of the great area of Alaska will be found to follow the coast line, at varying distances of from 100 to 150 miles from the seaboard, until that section of Alaska north of the Yukon mouth is reached, where a portion of the coast of Norton Sound is directly bordered by timber as far north as Cape Denbigh. From this point to the eastward and northeastward a line may be drawn just above the Yukon and its immediate tributaries as the northern limit of timber of any considerable extent. There are a number of small water courses rising here that find their way into the Arctic, bordered by hills and lowland ridges on which some wind-stunted timber is found, even to the shores of the Arctic Sea.

In thus broadly sketching the distribution of timber over Alaska it will be observed that the area thus clothed is very great. Yet when we come to consider the quality of the timber itself, and its economic value in our markets, we are obliged to adopt the standard of the lumber mills in Oregon and Washington Territory. Viewed in this light we find that the best timber of Alaska is the yellow cedar, which in itself is of great intrinsic value. But this cedar is not the dominant

timber by any means; it is the exception to the rule. The great bulk of Alaskan timber is that known as Sitkan spruce or balsam fir. The lumber sawed from this stock is naturally not of the first quality.

The fisheries, which I shall speak of hereafter, as also of the fur trade, cover a very large area, but their value and importance, in consequence of the limited market afforded for exportation on the Pacific coast, has not been fully developed. The supply certainly is more than equal to any demand.

The soil of Alaska is not sterile, being at many points of the requisite depth and fertility for the production of the very best crops of cereals and tubers. The difficulty with agricultural progress in Alaska is, therefore, not found in that respect; it is due to the peculiar climate.

Glancing at the map the observer will notice that hydrographers have defined the passage of a warm current, sufficient in volume and high enough in temperature to traverse the vast expanse of the North Pacific from the coast of Japan up and across a little to the southward of the Aleutian Islands, and then deflecting down to the mouth of the Columbia River, where it turns, one branch going north up along the coast of British Columbia by Sitka, and thence again to the westward, until it turns and bends back upon itself. The other grand arm, continuing from the first point of bifurcation, in its quiet, steady flow to the Arctic, passes up to the northeastward through the strait of Bering.[1] This warm current, stored with tropical heat, gives rise naturally, as it comes in contact with the colder water and air of the North, to excessive humidity, which takes form in the prevalent fog, sleet, and rain of Alaska, as noted and recorded with so much surprise by travelers and temporary residents from other climes. Therefore at Sitka, and, indeed, on the entire seaboard of south Alaska and the Aleutian Islands, instead of finding a degree of excessive cold carried over to the mainland across the Coast Range, which the latitude would seem to indicate, we find a climate much more mild than rigorous; but the prevalence of fog clouds or banks, either hanging surcharged with moisture or dissolving into weeks of consecutive rain, so retard and arrest a proper ripening of fruits and vegetables in that climate that the reasonable certainty of success in a garden from year to year is destroyed.

When we look at Alaska we are impressed by one salient feature, and that is the remarkable distances which exist between the isolated settlements. It is not at first apparent, but it grows on the traveler until he is profoundly moved at the expenditure of physical labor, patience, and skill required to traverse any considerable district of that country.

The Sitka district is essentially one of rugged inequality, being mountainous on the mainland to the exclusion of all other features, and equally so on the islands. It is traversed here, there, and everywhere by broad arms of the sea and their hundreds and thousands of lesser channels.

Land travel is simply impracticable. Nobody goes on a road; savages and whites all travel by the water. Perhaps the greatest humidity and the heaviest rainfall in the Alaskan country occur here. The equable and not rigorous climate permits of free navigation at all seasons of the year, and it is seldom indeed that the little lakes and shallow lagoons near the sea level are frozen so firmly as to allow of a winter's skating.

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[1] The existence of this northern branch of the warm Japanese current has been denied by Mr. William H. Dall, of the United States Coast and Geodetic Survey.

The Aleutian and Kadiak districts are quite as peculiar in themselves and as much individualized by their geological age and formation as is the Sitkan division. They hold within their boundaries a range of great fire mountains—grumbling, smoking, quaking hills, some of these volcanic peaks being so lofty and so impressive as to fix in the explorer's eye an image superb and grand, and so magnificent as to render adequate description quite impossible. Like the Sitkan district, the Aleutian and Kadiak regions are exceedingly mountainous, there being very little low or level land compared with the sum total of their superficial area; but in that portion extending for 1,100 miles to the westward of Kadiak, nearly over to Asia, bare of timber, a skeleton, as it were, is presented to the eye and strikes one with a sense of an individuality here in decided contrast with that of the Sitkan country. The hills not clothed with timber are covered to their summits in most cases with a thick crop of circumpolar sphagnum, interspersed with grasses, and a large flora, bright and beautiful in the summer season. To thoroughly appreciate how much moisture in the form of fog and rain settles upon the land, one can not do better than to leave the ship in the harbor, or the post where he is stationed, and take up a line of march through one of the narrow valleys near by to the summit of one of the lofty peaks. He will step upon what appeared from the window or the vessel a firm green sward, and sink to his waist in a shaking, tremulous bog, or slide over moss-grown shingle, painted and concealed by the luxuriant growth of cryptogamic life, where he expected to find a free and ready path.

Passing from this district a very remarkable region is entered, which I have called the Yukon and the Kuskokvim divisions. I have during two summers traversed the major portion of it from the north to the south, confirming many new and some mooted points. This region covers the deltoid mouth of a vast river, the Yukon, and the sea-like estuary—the Amazonian mouth of another—the Kuskokvim, with the extraordinary shoals and bars of Bristol Bay, where the tides run with surprising volume. The country itself differs strikingly from the two divisions just sketched, consisting, as it does, of irregular mountain spurs planted on vast expanses of low, flat tundra. It is a country which, to our race perhaps, is far more inhospitable than either the Sitkan or Kadiak divisions. Yet, strange to say, I have found therein the greatest concentrated population of the whole Territory. Of course it is not by agricultural or by mining or any other industry, save the aboriginal art of fishing and the traffic of the fur trade, that the people live; and, again, when the fur-bearing animals are taken into account, the quality and volume of that trade are far inferior to those of either of the previously named divisions, and we find the natives existing in the greatest number where, according to our measure of compensation, they have the least to gain.

This country, outside of these detached mountain regions and spurs, is a great expanse of bog, lakes, large and small, with thousands of channels between them, and sluggish currents filled with grasses and other aqueous vegetation, indicated to the eye by the presence of water lilies.

The traveler, tortured by mosquitoes in summer, blinded, confused, and disturbed by whirling "purgas," snow, and sleet in winter, finding the coast rendered almost inaccessible by the vast system of shoaling which the current of the great Yukon has effected, passes to the interior, whose superficial area comprises nearly five-sixths of the landed surface of the Territory.

Here is an immense tract reaching from Bering Strait, in a succession of rolling ice-bound moors and low mountain ranges, for 700 miles an unbroken waste, to the boundary line of British America. Then, again, from the crests at the head of Cook's Inlet and the flanks of Mount St. Elias northward over that vast area of rugged mountain and lonely moor to the east, nearly 800 miles, is a great expanse of country, over and through which not much intelligent exploration has been undertaken. A few traders and prospectors have gone up the Tennanah and over the old-established track of the Yukon; others have passed to the shores of Kotzebue Sound overland from the Koyukuk. Dog-sled journeys have been made by these same people among the natives of the Kuskokvim and those of the coast between Bristol Bay and Norton Sound; but the trader as he travels sees nothing, remembers nothing but his trade, and rarely is he capable of giving any definite information beyond the single item of his losses or his gains through the regions he may traverse. We know, however, enough to say now, without much hesitation, that this great extent which we call the interior is by its position barred out from occupation and settlement by our own people, and the climatic conditions are such that its immense area will remain undisturbed in the possession of its savage occupants, man and beast.

The subject of the agricultural resources of the country will, however, form the topic of another chapter in this report.

THE FURS OF ALASKA.

Of the various industries of Alaska the fur trade is one that may be discussed in a satisfactory manner, because we have authentic records of shipments, prices, and management reaching to the beginning of this and even to the middle of the last century. At the Siberian ports of Okhotsk, Bolsheretzk, and Petropavlovsk regular and generally reliable registers were kept of all furs arriving from the east, including the islands as well as the coast of the American continent. The figures obtained from these records may safely be considered below rather than above the actual numbers, because, as the Russian Government exacted a tithe or other percentage from all shipments, some shippers endeavored to smuggle through as much as they could without reporting it.

Even at this late day it is possible to apply a check to the totals of importation of furs from the region now called Alaska, by comparing the same with equally authentic figures of transactions in furs and teas on the Chinese frontier, and at Irkutsk, the center of the trade of all Siberia.

Of the large number of furs, principally sea otter, that found their way to Europe or China directly in the vessels of American and English traders toward the end of the eighteenth century and in the beginning of the nineteenth, we have full statements in the published journals of these vessels.

Only two instances of shipments of furs from Alaska to France are known—the famous expedition of La Pérouse, which touched this coast in the year 1788, and the trading venture by merchants of Marseilles, who sent out a ship under the command of Roquefeuille, in the year 1818. This French captain, who had sailed with the most sanguine expectations of opening a new field of operations to the venturesome traders of Marseilles, and of ultimately establishing a rival traffic to that of the East India Company, was doomed to disappointment. The poor quality of his trading goods was one of the causes of his failure

among Indians, who had for long years reaped the benefits of fierce rivalry between English, American, and Russian traders. He states in his own narrative that he looked upon the inferior grade of woolen goods with which he had been furnished in France as the chief cause of ill success in trading with the natives. He boasted, however, of the superior quality of French muskets, but as he confesses to having paid as much as a musket and 12 pounds of powder for a single sea-otter skin it seems that he profited but little by the superiority of the article. After a summer's cruise among the islands of the Alexander Archipelago Roquefeuille came to the conclusion that as a mere trader he could not succeed, and therefore followed the example of the Americans in organizing a hunting expedition on joint account with Baranof, the chief manager of the Russian colonies. In this venture also he met with misfortune. Being fitted out with Aleutian hunters, he was compelled to sign an agreement to pay the sum of $200 for any native who might lose his life while in his employ by drowning or at the hands of hostile natives. In the course of his expedition 26 Aleut hunters were killed by the Hydas on Prince of Wales Island, and as the number of sea otters secured did not exceed 200 Roquefeuille left the port of Alaska somewhat disgusted, and reported that there was no field for French enterprise on the northwest coast of America.

The American and the English explorers and traders continued for many years to hunt sea otters with Aleutians and their bidarkas, furnished by Baranof and his successors, but as their operations were chiefly carried on along the coast of New Albion or California the results of these ventures do not fall within the scope of this report.

The English and the American sea captains who visited Prince William Sound and the Alexander Archipelago previous to Vancouver's voyage reaped the most abundant harvest of sea otters in that section of the territory, as many as 2,000 skins being secured by a single vessel in one season; and at the beginning of the present century Baranof estimated that 120,000 sea otters were carried away by "foreigners." The prices even at that early day were remarkably high, and we find instances of 10 and 12 blankets, and even $40 in cash, having been paid for a single skin. The Russians, who were compelled to transport all their trading goods across the Asiatic continent and then by ships from Okhotsk, were not slow to discover that it was impossible to compete in trade with their English and American rivals. The valuable animal was rapidly becoming extinct in the more accessible hunting grounds and Baranof concluded to extend the old policy of hunting, in preference to trading, to the sea-otter ground of the southeast. He summoned large numbers of Aleuts and natives of Kadiak, with their bidarkas, and peremptorily ordered them to proceed to his new settlement at Sitka, hunting on the way. Parties composed of 600 and 800 canoes each set out upon this perilous journey of over a thousand miles, following the line of the coast. One-third of the fleet was lost on the way. Some of the natives were surprised by violent storms in crossing the open sea from one promontory to another, while others suffered death at the hands of hostile Indians of the mainland. Those who finally reached their destination were divided into smaller parties and sent out to hunt in the intricate inlets, streams, and forests of the country. Some never returned to report either their success or their losses. The association of Siberian merchants organized in 1785 to carry on the fur trade of the North Pacific had the favor of the Empress Catharine, but the first formal charter was granted by the Emperor Paul in 1799. When hunting in that region became no longer profit-

able the Russian-American Company continued to purchase of the Indians a few sea otters killed by them, but, owing to the vicinity of the Hudson Bay Company, the prices paid for these skins were exceedingly high. While the Aleut and Kadiak Innuit who were compelled to hunt for the company received but $10 for the very best grade of sea otter, the independent Thlinket sold the same quality for $30 and $40 at Sitka. The manager of the Russian Company acknowledged that no profit was derived in these transactions; that the skins were purchased only to prevent their acquisition by the Hudson Bay Company.

On the Aleutian Islands the killing of sea otters was brought into system and order as soon as the Russian-American Company obtained control of the country by their charter in 1799. At first the company claimed the right to employ the Aleutian hunters in the pursuit of the sea otter without any compensation beyond their subsistence as an offset to their exemption from imperial taxes and other duties. This profitable but unjust procedure was abolished by the Emperor Alexander I, and the company was instructed to pay the Aleutian hunters for every skin deposited in the company's storehouses. The Emperor's manifesto was complied with, but the price paid to the Aleutian hunters for sea-otter skins was ridiculously small, only 10 rubles of colonial scrip or leather currency being paid to the hunter for a first-class skin, and he was required to furnish his own subsistence, with the exception of a few articles of luxury—a very small quantity of flour and tobacco. Even in those early times the Russian-American Company realized from $50 to $100 for their skins in the markets of Asia and Europe.

When the Russian hunters and traders first advanced from the coast of Asia along the Aleutian chain of islands the expeditions fitted out by Siberian merchants, consisting of one or two small vessels, were generally absent from five to seven years, and at the end of that time returned with from 2,000 to 7,000 sea-otter skins. Their primitive crafts were of such wretched construction that fully 50 per cent of these valuable cargoes were lost by shipwreck. In spite of these losses, however, the value of sea-otter and fur-seal skins imported through the port of Okhotsk was estimated at the end of the eighteenth century at nearly 2,000,000 rubles per annum, of which the Imperial Government exacted one-tenth as royalty from the hunters. Under the indiscriminate slaughter of many rival hunting expeditions the sea otter disappeared rapidly, and when the Russian-American Company at last obtained exclusive control of the whole business the annual catch did not exceed 1,500 skins for nearly half a century succeeding their first charter, and at no time during the existence of the company was it officially reported as exceeding 2,000. The policy adopted by the Russian company was to hunt thoroughly over a certain sea-otter ground for two successive years and then let it remain undisturbed for three years following, but even under this careful management the total catch did not increase to the figure attained since the transfer of the country to the United States. Certain islands and their outlying rocks were more prolific in the valuable animals than they are at present, but the total yield of sea-otter skins is now five or six times what it was then.

It is true that we find such entries as the following in the records of the custom-house of Okhotsk in a single year: "The ships of the promyshleniks discharged at the custom-house in the year 1770 16,000 sea otters, 23,000 sables, 2,400 black foxes, 14,000 red foxes, 25,000 fur seals, 36,000 blue foxes, valued at 2,000,000 rubles, and the traders estimate the value of goods given in exchange at 200,000 rubles;" but it must

be remembered that the entries of that one year may have been the result of the transactions of several ships during four or five years.

The imperial chamberlain, Rezanof, who visited the Russian colonies in America between 1805 and 1807, estimated the value of sea otters exported annually from the colonies at 80,000 rubles. Somewhat later, in 1817, the artist Choris, who accompanied Kotzebue in his voyage around the world, reported the annual catch of this valuable animal as worth from 100,000 to 150,000 rubles. The official reports of the company, however, showed a much smaller estimate; but it is safe to state that from the time of Kotzebue's visit to the Russian colonies until their transfer to the United States no less than 2,000 sea otters were placed in the market every successive year, and also that to those shipments alone was due the maintenance of Russian colonies on this continent.

Of the profits accruing to the Russian-American Company from this traffic, from 300,000 to 400,000 rubles were annually disbursed to employees in the colonies, but nine-tenths of this sum was ultimately carried to Russia, only a small fraction finding its way into the hands of the natives of the country. At present the change in the way of conducting the business is so great as to leave 50 per cent of the value of furs, at the lowest calculation, in the territory. On the other hand, the value of furs shipped from the territory is also vastly increased.

In scanning the tables appended to this chapter the reader may easily trace the decrease or increase of sea otters from year to year, and the great discrepancy between the yield of the present and of former time can not fail to attract his attention. The remarkable increase of shipments in our time is due solely to the increased inducements to the natives to exert themselves to the utmost, in order to satisfy the new wants growing upon them every year. The animal certainly existed in the same numbers in former times, but whenever a large body of them moved from one feeding ground to another no effort was made to trace or follow them up as is done now. As far as can be ascertained the greater slaughter of the sea otter has not reduced the number existing in the Alaskan waters to any perceptible extent, and at present the shipments increase from year to year. In due course of time, however, the collapse must come, and the black cloud of prospective ruin and starvation is even now rising within the poor Aleut's limited scope of vision.

At an early day in the history of the Russian colonies in America transactions in the skins of fur seals began to rival in magnitude those in sea-otter skins. During the year immediately succeeding the discovery of the Pribilof group, in 1786, over 500,000 fur seals were killed by the Russian hunters (Veniaminof makes these figures 2,000,000), and the animals were almost extirpated from the islands. Fully one-half of the skins taken during that period were thrown into the sea in an advanced stage of putrefaction, poisoning the waters around the islands to such an extent as to drive away the seals for several seasons. It was soon discovered that the Chinese merchants of the Siberian frontier placed a high value upon these skins, frequently refusing to exchange their teas for any other equivalent, but when the Russian-American Company obtained its exclusive privileges the fur seals were so nearly extinct that the company's traffic in their skins was at first quite insignificant. The chamberlain, Rezanof, above mentioned, was the first to observe the threatened extinction of the trade, and promptly applied the remedy by prohibiting the killing of seals for a period of five years. At the end of that time the shy animals had returned and

multiplied sufficiently to afford a regular and reliable source of revenue. On the Pribilof Islands, as on the Aleutian group, the company paid native hunters for each skin secured, but the price was out of all proportion to the value, 40 and 50 cents each being all the poor Aleut obtained for skins worth then $40 in the Chinese market. Under the circumstances it was natural that these poor fellows did not relish life on the barren, desolate islands, and frequently asked to be relieved by other laborers.

These seal islands were early looked upon by the Russian managers as an unfailing treasury from which to draw in times of need. At the beginning of this century, when breadstuffs and other provisions were shipped to the colonies through Siberia, frequently failing to arrive at the proper time, the chief manager, Baranof, was obliged to purchase whole cargoes of goods and provisions from the English and American traders, and, having no money on hand for such transactions, he hit upon the expedient of paying in fur seals, a currency always at hand when needed. At first this mode of payment was profitable enough, the captains accepting each skin as an equivalent for a Mexican dollar. These transactions becoming known, expeditions were fitted out in England and at New York and Boston with the sole view of exchanging cheap provisions for fur seals at Sitka and then selling the latter at an immense profit in Chinese ports. The managers of the Russian company in St. Petersburg heard of this traffic and ordered the shipment of seal skins to China direct on account of the company, but being continually in want of provisions the manager of the colonies could not always comply with his instructions, though he succeeded in raising the price of skins from $1 to $2.

An end was finally put to these transactions by a peremptory order from St. Petersburg to make no further payments in fur seals. The reason for this order was a very sharp transaction on the part of a Yankee trader who had sold a cargo of provisions to Baranof at Sitka, receiving fur seals at the rate of $1 each in payment, and then crossed over to Kamchatka with his ship and sold the skins to the agent of the same company at that place for $3 each.

At the time of Pribilof's discovery of the seal islands they were found to be uninhabited, and the vast number of seals shipped during the first decade succeeding were killed by laborers from Unalaska and Atkha Islands hired for a period of years. These Aleuts were engaged at a fixed annual salary, being relieved from time to time by others, generally at their own request. It will thus be seen that from the very beginning the Russians recognized no proprietary rights to the fur seals as vested in the Aleuts. Subsequently, when the Russian-American Company assumed control, these laborers were allowed, and even compelled, to remain for longer periods of time, sometimes for a whole generation, as the company by its charter became sole owner of everything within the limits of the Russian colonies in America; and, consequently, every fur-bearing animal killed by natives was considered as killed for the company, payment being made in the shape of compensation for the natives' time or labor. The paragraph in the imperial charter of the company defining its rights invested that organization with full proprietary title to "all products of the sea and land, including even birds of the air, and whatever might be found in the interior of the earth."

In 1805, as already mentioned, the seal islands were visited by Rezanof and Langsdorff. The former did all in his power to arrest the indiscriminate slaughter of seals by removing one-half of the men

engaged in killing, and prohibiting shipments of skins for five years thereafter. Langsdorff, on the other hand, in his voluminous reports called the attention of the Imperial Government to the threatened extinction of fur seals, making the rather remarkable statement that 30,000 seals had been killed for food by the laborers on the islands, the skins being thrown away; and also that he had observed in the month of May a school of fur seals moving southward and covering the surface of the ocean for a distance of 2 nautical miles. Langsdorff presumed that this abnormal movement, entirely at variance with the habits of the animal, was caused by the indiscriminate onslaught of Aleut hunters on the islands of St. Paul and St. George.

The measures adopted by Rezanof certainly proved effective, as only ten years later Kotzebue stated that from these two seal islands the Russian-American Company derived the most regular and ample revenue in all its vast possessions. The skins that had accumulated on the islands previous to Rezanof's arrival had been most carelessly cured by a crude process of drying over fires. Of 60,000 skins shipped from there to Canton by the ship *Neva*, 30,000 were thrown overboard within a day's sail of Canton in an advanced stage of putrefaction. Gradually, however, improvements were introduced in the management of the business and in the processes of curing and packing. The art of preparing seal skins for the market by plucking and dyeing was an invention of the Chinese, reported by the Russian-American Company's agent at Okhotsk as early as 1799. The exact date at which this process was adopted by English furriers can not now be ascertained, but it is safe to presume that it was early in the present century, as a regular demand for these skins in England can be traced to that time.

At a later period—about the year 1850—shipments directly to New York were made, and these continued at the rate of from 5,000 to 10,000 skins every year until the transfer of the Territory.

When the acquisition of the Russian colonies was advocated before Congress no mention was made of any trade in fur seals, but the annual average of fur-seal shipments from the Pribilof Islands to England, the United States, and China from 1820 to 1867 was 42,000 skins, or an aggregate of 1,974,000 in forty-seven years.

It is not easy to explain why the Russians failed to work this "seal mine" to its full capacity. In the reports of the agents on the islands to the chief manager at Sitka subsequent to 1820 we find a constant repetition of the statement that the seals were increasing in number, accompanied by a request for permission to kill a number of old seals for the purpose of obtaining oil from their blubber, and in one instance this request was granted, and in a year or two after the discovery of gold in California, when fur-seal oil sold in San Francisco at $4 per gallon, the skins of these oily old patriarchs were of no value.

It is, however, altogether due to the excessive care exercised by the Russian authorities that the fur seals did not become extinct on the islands during the years intervening between the sale of the Territory and the passage of the act of Congress making the Pribilof group a Treasury reservation.

By that time the accumulation of seals had become too great to be affected by the killing of over a million within three years. The present limitation to 100,000 seals per annum was based upon the most careful observations and estimates; but it has long since become evident that, as far as any danger of extirpation is concerned, the number might safely be doubled. A change of fashion may take place at any time and depreciate, at least temporarily, the product of these islands; the

beauty and durability of the material, however, are such as to insure its consumption to some extent among the votaries of fashion for an indefinite period, and just so long Alaska can be made a valuable possession without reference to any other sources of wealth that may be developed within its boundaries.

The sea otter is an exceedingly shy and sensitive animal and does not congregate in any great numbers, rarely setting foot upon the shore, unless it be for a few hours of repose upon some outlying rock or bar, and probably during the breeding season in some secluded retreat. It is found 60 and 80 miles from land, singly and in pairs; and even females with their young may be seen drifting about at that distance. Patches of floating kelp are their favorite resting places, and in still weather the female can be seen floating on her back, holding her offspring. Some hunters with well-developed ears or vivid imagination assert that the animal gives forth a crooning sound or lullaby, hushing the baby, as it were. During a very cold winter (in 1879–80) some sea otters came ashore in Cook's Inlet.

In former times the Aleutian hunters prepared themselves for sea-otter expeditions by fasting, bathing, and other ceremonies. The sea otter was believed to be possessed of a very strong aversion to the female sex, and consequently the hunter was obliged to separate himself from his wife for some time prior to his departure, and also to prepare the garments he was to wear, or at least to wash with his own hands such of his garments as had been made by women. On his return from a successful hunt the superstitious Aleut of former times would destroy the garments used during his expedition, and before entering his hut dress himself anew from head to foot in clothing prepared by his faithful spouse during his absence. The hunting garments were then thrown into the sea. One old man stated in explanation of this proceeding that the sea otters would find the clothing and come to the conclusion that their late persecutor must be drowned, and that there was no further danger. With the spread of the Christian religion among the sea-otter hunters most of these superstitious ceremonies were abolished, but even at the present day the sea-otter hunter occupies a prominent position in the community and enjoys great social advantages. Anything he may want which is not in the possession of his own family will be at once supplied by his neighbors, and weeks and even months are spent in careful preparation of arms, canoes, and implements.

The mode of hunting the animal has not essentially changed since the earliest times. A few privileged white men located in the district of Ounga employ firearms, but the great body of Aleutian hunters still retain the spear, and in a few instances the bow and arrow. The sea otter is always hunted by parties of from 4 to 20 bidarkas, each manned by 2 hunters. From their village the hunters proceed to some lonely coast near the hunting ground, either in their canoes or by schooners and sloops belonging to the trading firms, a few women generally accompanying the party to do the housework in the camp. In former times, of course, this was not the case. The tents of the party are pitched in some spot not visible from the sea, and the hunters patiently settle down to await the first favorable day, only a smooth sea permitting the hunting of sea otter with any prospect of success. In the inhospitable climate of Alaska weeks and months sometimes pass by before the patient hunters are enabled to try their skill. A weather-wise individual, here yclept "astronome," generally accompanies each

party, giving due notice of the approach of favorable weather and the exact time when it is best to set out, and few Aleuts are bold enough to begin a hunt without the sanction of this individual. At last the day arrives, and after a brief prayer the hunters embark fully equipped, and in the best of spirits exchange jokes and banter until the beach is left behind; then silence reigns, the peredovchik, or leader, assumes command, and at a signal from him the bidarkas start out in a semicircle from 50 to 100 yards distant from each other, each hunter anxiously scanning the surface of the water, at the same time having an eye upon the other canoes. The sea otter comes up to the surface to breathe about once in every ten minutes, the smooth, glossy head remaining visible but a few seconds each time. As soon as the hunter spies an otter he lifts his paddle as a signal and then points it in the direction taken by the animal, and the scattered bidarkas at once close in a wide circle around the spot indicated by the fortunate discoverer. If the animal comes up within this circle the hunters simply close in gradually, beating the water with their hands to prevent the escape of the quarry; but very often the wary animal has changed its direction after diving, and the whole fleet of canoes is obliged to change course frequently before the final circle is formed. As soon as the otter comes up within spear's throw one of the hunters exerts his skill and lodges a spear head in the animal, which immediately dives. An inflated bladder is attached to the shaft, preventing the otter from diving very deep. It soon comes up again, only to receive a number of other missiles, the intervals between attacks becoming shorter each time, until exhaustion forces the otter to remain on the surface and receive its death wound. The body of the animal is then taken into one of the bidarkas and the hunt continues if the weather is favorable. On the return of the party each animal killed is inspected by the chief in the presence of all the hunters and its ownership ascertained by the spear head that caused the mortal wound, each weapon being duly marked. The man who first struck the otter receives from $2 to $10 from the owner. The skins of the slain animals are at once removed, labeled, and classified according to quality by the agents of the trading firms, and carefully stored for shipment. It frequently happens that a whole day passes by without a single sea otter being sighted, but the Aleut hunters have a wonderful patience and do not leave a place once selected without killing some sea otters, be the delay ever so long. There are instances where hunting parties have remained on barren islands for years, subsisting entirely on "algæ" and mussels cast from the sea. On the principal sea-otter grounds of the present time, the island of Sannakh and the neighborhood of Belkovsky, the hunting parties seldom remain over four or five months without securing sea otters in sufficient number to warrant their return. Single hunters have sold sea otters to the value of $800 as their share of such brief expeditions, but payment is not made until the return of the party to their home station.

As soon as the result of a day's hunt has been ascertained the chief or leader reminds the hunters of their duty toward the church, and with their unanimous consent some skin, generally of a small animal, is selected as a donation to the priest, all contributing to reimburse the owner. The schools also receive donations of this kind, and the skins thus designated are labeled accordingly and turned over to the trading firms, who place the cash value at the disposal of the priest. Rivalry in the business of purchasing sea-otter skins has induced the various

firms to send agents with small assortments of goods to all the hunting grounds as an inducement to the members of parties to squander some of their earnings in advance.

The method of killing the sea otter is virtually the same in all sections frequented by it.

The killing of fur seals is accomplished entirely on land, and has been reduced almost to a science of the greatest dispatch and system. The able-bodied Aleuts now settled upon the two islands of St. Paul and St. George are, by the terms of the agreement between themselves and the lessees, the only individuals permitted to kill and skin the seals for the annual shipment as long as they are able to perform the labor efficiently within a given time. For this labor they are remunerated at the rate of 40 cents per animal. Lifelong practice has made them expert in using their huge clubs and sharp skinning knives, both implements being manufactured expressly for this use. These men are, as a class, proud of their accomplishments as sealers, and too proud to bemean themselves in doing any other kind of work. For all incidental labor, such as building, packing, loading and unloading vessels, etc., the lessees find it necessary to engage laborers from the Aleutian Islands, these latter individuals being generally paid at the rate of $1 per diem.

The work connected with the killing of the annual quota of fur seals may be divided into two distinct features, the separation of the seals of a certain age and size from the main body and their removal to the killing ground forming the preliminary movements, the final operation consisting of another selection among the select and killing and skinning the same. The driving as well as the killing can not be done in every kind of weather, a damp, cool, cloudy day being especially desirable for the purpose.

As it is the habit of the young male seals up to the age of 4 years to lie upon the ground back of the so-called rookeries or groups of families that line the seashore, the experienced natives manage to crawl in between the families and the "bachelors," as they were named by the Russians, and gradually drive them inland in divisions of from 2,000 to 3,000. It is unsafe to drive the seals more than 5 or 6 miles during any one day, as they easily become overheated and their skins are thereby injured. When night comes on the driving ceases, and sentries are posted around each division to prevent the animals from straying during the night, occasional whistling being sufficient to keep them together. In the morning, if the weather be favorable, the drive is continued until the killing ground is reached, where the victims are allowed to rest over night under guard, and finally, as early as possible in the morning, the sealers appear with their clubs, when again small parties of 20 or 30 seals are separated from their fellows, surrounded by the sealers, and the slaughter begins. Even at this last moment another selection is made, and any animal appearing to the eye of the experienced Aleut to be either below or above the specified age is dismissed with a gentle tap of the club and allowed to go on its way to the shore rejoicing at its narrow escape. The men with clubs proceed from one group to the other, immediately followed by the men with knives, who stab each stunned seal to the heart to insure its immediate death. These men are in turn followed by the skinners, who, with astonishing rapidity, divest the carcasses of their valuable covering, leaving, however, the head and flippers intact. Only a few paces behind the skinners come carts drawn by mules, into which the skins are rapidly thrown and carried away. The wives and daughters of the sealers linger around

the rear of the death-dealing column, reaping a rich harvest of blubber which they carry away on their heads, the luscious oil dripping down their faces and over their garments.

The skins, yet warm from the body, are discharged into capacious salt houses and salted down for the time being like fish in bins. This treatment is continued for some time and after the application of heavy pressure they are finally tied into bundles of two each, securely strapped, and then shipped.

The process by which these unsightly, ill-smelling bundles are transformed into the beautiful fabrics of fashion is described briefly in a letter written by a leading furrier of New York, from which I extract the following:

When the skins are received by furriers in the salt the latter is washed off and the fat removed from the inside with a beaming knife, great care being taken that no cuts or uneven places are made in the pelt. The skins are next thoroughly cleansed by being stretched upon beams, with the fur side up, and then a careful removal of grease or other matter attached thereto. The next step in the proceeding is a stretching of pelts upon frames and drying the same over a moderate heat. After the drying process they are soaked in water and thoroughly washed with soap. After this the fur is dried again, the pelt being kept moist, and the operator pulls out the long hair with the assistance of a dull knife. The operation—a very delicate one—is repeated several times, until nothing but the soft fur remains. The skins are then dried again and dampened on the pelt side and shaved until a fine, even surface is obtained. Then follows the slow and tedious process of working, drying, and softening the skins by treading them with bare feet in a hogshead, with fine hardwood sawdust to absorb the grease. In dyeing the liquid dye is put on with a brush, carefully covering the points of the standing fur. The skin is then pulled so as to make the points touch each other for some little time, and partially dried. The dry dye is removed and another coat applied, and the same process is repeated a a number of times. A few of the coats of dye are put on, heavily pressed down to the edge of the fur. From eight to twelve coats produce a good color. The skins are then washed again and cleansed with sawdust. The English process is said not to include the washing after dyeing.

The manner in which the proceeds of the joint labor of the sealers are divided among them is quite worthy of attention, and in its way solves to some extent the problem of communal labor. The introduction of this rather complicated system was founded upon measures adopted by the promyshleniks, or the companies of Siberia of the last century. As an example the division of proceeds on St. Paul Island alone in the year 1879 is presented: The sum total of joint earnings was first ascertained; next the number of claims upon the fund—that is, the families, individuals, and institutions to be supported—was definitely settled. Special donations were next in order, these consisting of gifts to three chiefs or superintendents of the labor of $150 each, $100 each to two men connected with church service, and one annual donation of $450 to the parsonage of Unalaska. The remainder was divided among the church of St. Paul, the priest of that church, 64 actual laborers and heads of families, and 14 invalids and widows, the latter being divided into three classes according to their wants. The church, priest, and able-bodied men are entitled to what are called first-class shares in the proceeds, the others receiving second, third, and fourth class shares respectively. The total number of participants in the distribution of earnings by shares in the year 1879 was 82, counting the church and priest at two shares each. The sum total of earnings was in that instance divided by 82 in order to ascertain the value of one first-class share. The value of a second-class share was ascertained by deducting 10 per cent from the first-class share, and the same rule was followed as to the third and fourth classes. In the reduction of three classes of shares a sufficient sum is left to cover all the

special gifts above mentioned. In the year referred to, the division was as follows: The total earnings of sealers on St. Paul Island were $32,153.40; first-class shares, 68, of $410.75 each; second-class shares, 6, of $369.67 each; third-class shares, 6, of $328.60, and two fourth-class shares of $287.52 each. The special gifts conferred by unanimous consent of the community, aggregating $1,100, have already been mentioned above. The same rules are observed in dividing the earnings of the sealers on the island of St. George, where the catch rarely exceeds 20,000 per annum and the value of shares is somewhat smaller.

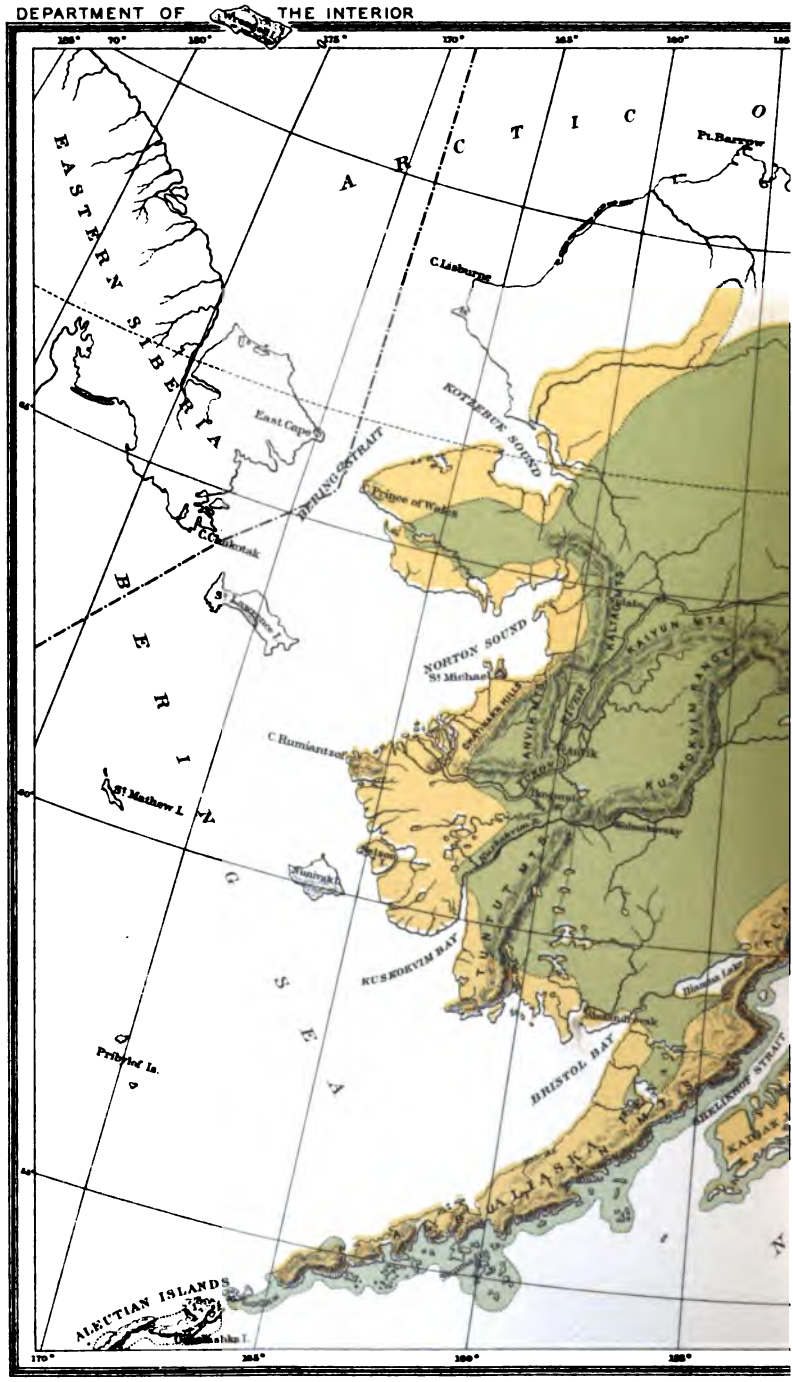
No better plan could be devised by experienced political economists to provide in a just and equitable manner for all the members of an isolated community cut off from all the means of support but the one secured for them by the Government.

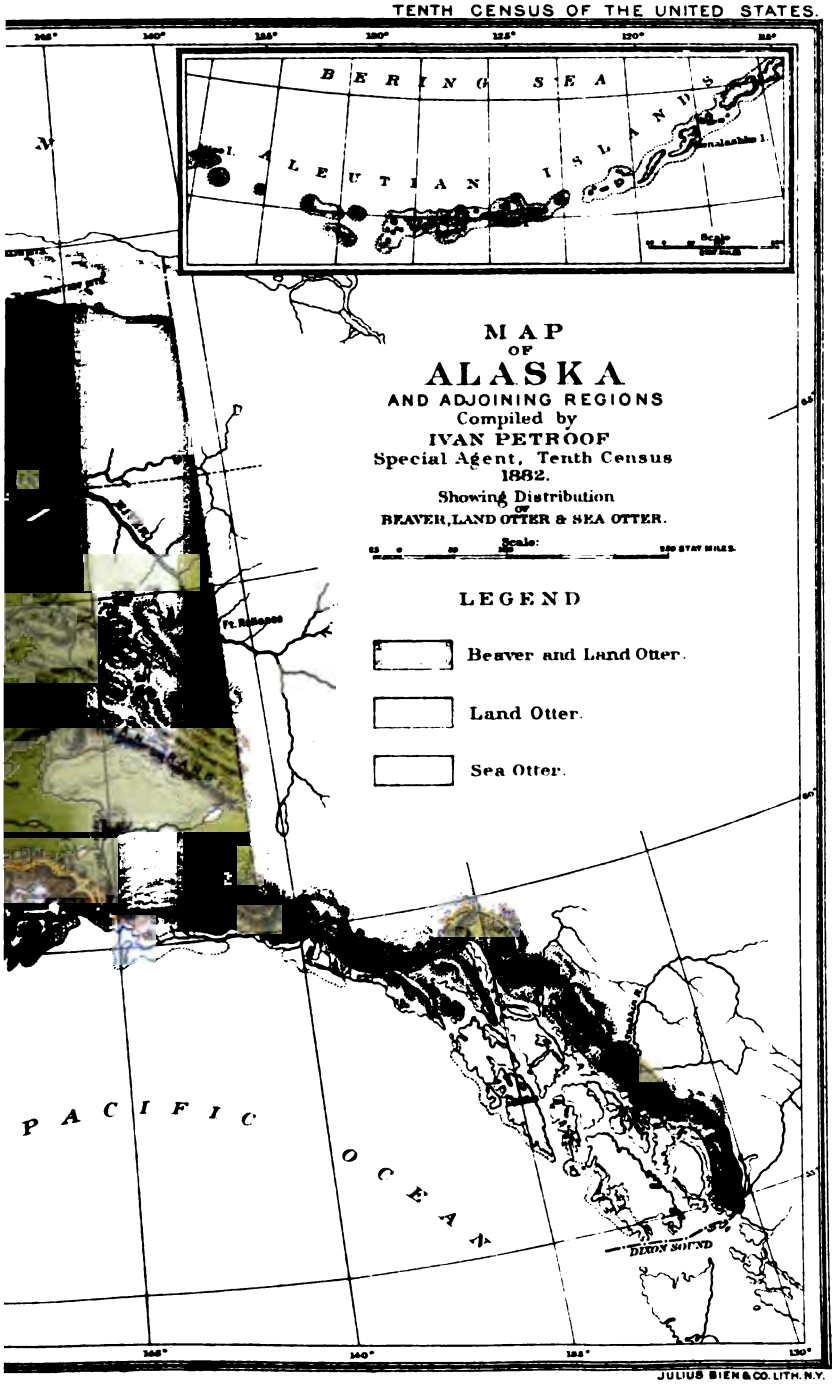
It is evident that the shipments of both sea otters and fur seals have more than doubled since the transfer of the Russian colonies to the United States. An official statement, made in 1863, concerning the shipments of sea otters from Sitka during the period of twenty years preceding, places the aggregate at 25,899, or an annual production of 1,295. At the present date the number approaches 6,000. The distribution of the sea otter is somewhat changed, but I know of only one hunting ground where the number secured annually was greater in the past than it is now; that is on the island of Attoo, which, during the twenty years mentioned, produced 2,421 sea-otter skins, or 121 per annum, against 14 or 16 now obtained on the island each year. In the district of Kadiak and the Shumagin Islands the yield has been increased, while at the same time sea otters have made their appearance in large numbers at the southern end of Cooks Inlet, where they were nearly exterminated almost a century since.

The increase in seals does not extend to the Commander Islands, still under Russian control.

Of land furs the records now available are less satisfactory with regard to the past. We have, however, an official statement covering the same twenty years—from 1842 to 1862—in which skins of foxes of three kinds (black, cross, and red), and from all sources, are reported as numbering 77,847, or 3,892 per annum; those of the Arctic fox, 54,134, or 2,706 per annum; beaver, 157,484, or 7,874 per annum; land otter, 70,473, or 3,523 per annum; marten, 12,882, or 644 per annum; bear, 1,893, or less than 100 per annum. That this official statement was far below the actual yield is made probable by the fact that at the present day, after forty years of hunting and trapping, the yield of land furs is greater by many thousands of each species. The only fur-bearing animal of this class that has decreased in numbers in our times is the beaver, and this is not due to the effects of hunting or trapping, but to several seasons of extraordinary cold, during which the submarine entrances to the beaver huts were closed by ice and the animals starved inside.

The marten or sable, though inferior to the Siberian species, is quite valuable, but the supply is limited. Whether it ever existed in larger numbers is difficult to ascertain, because the Russian company did not ship them from the colonies, but gave or sold them to the higher classes of its employees. Under the present rule of permitting only natives of the soil to hunt and trap, the balance between supply and consumption seems to be well preserved. No complaints are heard of the extinction of any fur-bearing animals, with the one exception of the beaver. As the whims of fashion change the prices of certain kinds and qualities of furs, traders induce the natives to secure those kinds in preference


DEPARTMENT OF THE INTERIOR
ARCTIC OCEAN
Pt. Barrow
C. Lisburne
EASTERN SIBERIA
East Cape
KOTZEBUE SOUND
BERING STRAIT
Prince of Wales
C. Chaplino
BERING SEA
St. Lawrence I.
NORTON SOUND
St. Michael
KAYUN MTS.
KUSKOKVIM RANGE
C. Romanzof
St. Matthew I.
Hooper Bay
KUSKOKVIM BAY
Pribilof Is.
BRISTOL BAY
ALASKA PENINSULA
ALEUTIAN ISLANDS
Unalaska I.



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to others, and thus discrepancies arise in the annual catch, but this makes no difference as to the total. The fact that game, such as moose and reindeer, has been killed off to a great extent in the regions furnishing the principal land furs would lead us to expect that the natives, deprived of their natural food supplies, would be compelled to purchase largely imported provisions of the traders, and hunt more actively to provide means for the purchase. As far as can be observed this is the case only with regard to flour, though they seem to spend now for food money which was formerly squandered in beads and gaudy clothing unsuited to their mode of life. If extinction of fur-bearing animals in the continental region of Alaska should take place in the future it will be due entirely to the constant drain from the Arctic shore, where the Eskimos are constantly exchanging furs for whisky and other intoxicating liquors, drawing largely upon furs obtained from their neighbors in the interior as far south as the Yukon, for which they receive no return but the means of stupefying themselves for days and weeks, and perhaps a breech-loading rifle, which becomes useless in their hands as soon as the fixed ammunition is expended. The fur-bearing animals on the immediate seacoast are almost exterminated or of little value, but the equivalent return of supplies of alcohol must be obtained, and, as a consequence, a traffic with their southern neighbors is carried on by these people, on the principle of buying furs for a little whisky and selling them for a larger quantity, the evils of this system working in both directions.

THE DISTRIBUTION OF THE FUR-BEARING ANIMALS IN ALASKA.

THE FUR SEAL (*Callorhinus ursinus*).—The only hauling or breeding grounds of the fur seal known in Alaska are on the islands of St. Paul and St. George, with the addition perhaps of the adjoining Otter Island, where these animals occasionally haul up but do not breed. From early spring until late in the autumn fur seals are met with in all portions of the North Pacific inclosed by the Alaska coast, from latitude 54° 40′ to Mount St. Elias, and thence westward along Prince William Sound, the east side of Kenai Peninsula, and along the Aliaska Peninsula and its continuation, the Aleutian chain of islands. In Bering Sea the animal has not been observed to the northward of latitude 58°. In the spring of the year only fur seals are found in large numbers in the vicinity of the Strait of Fuca and along the coast of Vancouver and Queen Charlotte Islands. During the time of the general migration to and from the breeding grounds several of the passes through the Aleutian chain are crowded with adults in the spring and with young seals and yearlings in the late summer and autumn. The presence of large numbers of these animals in these secluded waters and those of Prince William Sound late in the season (in June and July) has often given rise to the supposition that some breeding grounds must exist in those localities, but the most minute and persistent search has failed to sustain the supposition.

About 50 miles south of the Aleutian chain large numbers of seals are frequently seen during the summer, and for half a century rumors of the existence of breeding grounds in that neighborhood were launched from time to time.

The Russian-American Company fitted out numerous exploring expeditions, but these were always unsuccessful. The last enterprise of the kind was undertaken by a former employee of the Russian company, under the auspices of the present lessees of the seal islands, on the schooner *John Bright*, in 1873, being the third expedition of the kind

able the Russian-American Company continued to purchase of the Indians a few sea otters killed by them, but, owing to the vicinity of the Hudson Bay Company, the prices paid for these skins were exceedingly high. While the Aleut and Kadiak Innuit who were compelled to hunt for the company received but $10 for the very best grade of sea otter, the independent Thlinket sold the same quality for $30 and $40 at Sitka. The manager of the Russian Company acknowledged that no profit was derived in these transactions; that the skins were purchased only to prevent their acquisition by the Hudson Bay Company.

On the Aleutian Islands the killing of sea otters was brought into system and order as soon as the Russian-American Company obtained control of the country by their charter in 1799. At first the company claimed the right to employ the Aleutian hunters in the pursuit of the sea otter without any compensation beyond their subsistence as an offset to their exemption from imperial taxes and other duties. This profitable but unjust procedure was abolished by the Emperor Alexander I, and the company was instructed to pay the Aleutian hunters for every skin deposited in the company's storehouses. The Emperor's manifesto was complied with, but the price paid to the Aleutian hunters for sea-otter skins was ridiculously small, only 10 rubles of colonial scrip or leather currency being paid to the hunter for a first-class skin, and he was required to furnish his own subsistence, with the exception of a few articles of luxury—a very small quantity of flour and tobacco. Even in those early times the Russian-American Company realized from $50 to $100 for their skins in the markets of Asia and Europe.

When the Russian hunters and traders first advanced from the coast of Asia along the Aleutian chain of islands the expeditions fitted out by Siberian merchants, consisting of one or two small vessels, were generally absent from five to seven years, and at the end of that time returned with from 2,000 to 7,000 sea-otter skins. Their primitive crafts were of such wretched construction that fully 50 per cent of these valuable cargoes were lost by shipwreck. In spite of these losses, however, the value of sea-otter and fur-seal skins imported through the port of Okhotsk was estimated at the end of the eighteenth century at nearly 2,000,000 rubles per annum, of which the Imperial Government exacted one-tenth as royalty from the hunters. Under the indiscriminate slaughter of many rival hunting expeditions the sea otter disappeared rapidly, and when the Russian-American Company at last obtained exclusive control of the whole business the annual catch did not exceed 1,500 skins for nearly half a century succeeding their first charter, and at no time during the existence of the company was it officially reported as exceeding 2,000. The policy adopted by the Russian company was to hunt thoroughly over a certain sea-otter ground for two successive years and then let it remain undisturbed for three years following, but even under this careful management the total catch did not increase to the figure attained since the transfer of the country to the United States. Certain islands and their outlying rocks were more prolific in the valuable animals than they are at present, but the total yield of sea-otter skins is now five or six times what it was then.

It is true that we find such entries as the following in the records of the custom-house of Okhotsk in a single year: "The ships of the promyshleniks discharged at the custom-house in the year 1770 16,000 sea otters, 23,000 sables, 2,400 black foxes, 14,000 red foxes, 25,000 fur seals, 36,000 blue foxes, valued at 2,000,000 rubles, and the traders estimate the value of goods given in exchange at 200,000 rubles;" but it must

be remembered that the entries of that one year may have been the result of the transactions of several ships during four or five years.

The imperial chamberlain, Rezanof, who visited the Russian colonies in America between 1805 and 1807, estimated the value of sea otters exported annually from the colonies at 80,000 rubles. Somewhat later, in 1817, the artist Choris, who accompanied Kotzebue in his voyage around the world, reported the annual catch of this valuable animal as worth from 100,000 to 150,000 rubles. The official reports of the company, however, showed a much smaller estimate; but it is safe to state that from the time of Kotzebue's visit to the Russian colonies until their transfer to the United States no less than 2,000 sea otters were placed in the market every successive year, and also that to those shipments alone was due the maintenance of Russian colonies on this continent.

Of the profits accruing to the Russian-American Company from this traffic, from 300,000 to 400,000 rubles were annually disbursed to employees in the colonies, but nine-tenths of this sum was ultimately carried to Russia, only a small fraction finding its way into the hands of the natives of the country. At present the change in the way of conducting the business is so great as to leave 50 per cent of the value of furs, at the lowest calculation, in the territory. On the other hand, the value of furs shipped from the territory is also vastly increased.

In scanning the tables appended to this chapter the reader may easily trace the decrease or increase of sea otters from year to year, and the great discrepancy between the yield of the present and of former time can not fail to attract his attention. The remarkable increase of shipments in our time is due solely to the increased inducements to the natives to exert themselves to the utmost, in order to satisfy the new wants growing upon them every year. The animal certainly existed in the same numbers in former times, but whenever a large body of them moved from one feeding ground to another no effort was made to trace or follow them up as is done now. As far as can be ascertained the greater slaughter of the sea otter has not reduced the number existing in the Alaskan waters to any perceptible extent, and at present the shipments increase from year to year. In due course of time, however, the collapse must come, and the black cloud of prospective ruin and starvation is even now rising within the poor Aleut's limited scope of vision.

At an early day in the history of the Russian colonies in America transactions in the skins of fur seals began to rival in magnitude those in sea-otter skins. During the year immediately succeeding the discovery of the Pribilof group, in 1786, over 500,000 fur seals were killed by the Russian hunters (Veniaminof makes these figures 2,000,000), and the animals were almost extirpated from the islands. Fully one-half of the skins taken during that period were thrown into the sea in an advanced stage of putrefaction, poisoning the waters around the islands to such an extent as to drive away the seals for several seasons. It was soon discovered that the Chinese merchants of the Siberian frontier placed a high value upon these skins, frequently refusing to exchange their teas for any other equivalent, but when the Russian-American Company obtained its exclusive privileges the fur seals were so nearly extinct that the company's traffic in their skins was at first quite insignificant. The chamberlain, Rezanof, above mentioned, was the first to observe the threatened extinction of the trade, and promptly applied the remedy by prohibiting the killing of seals for a period of five years. At the end of that time the shy animals had returned and

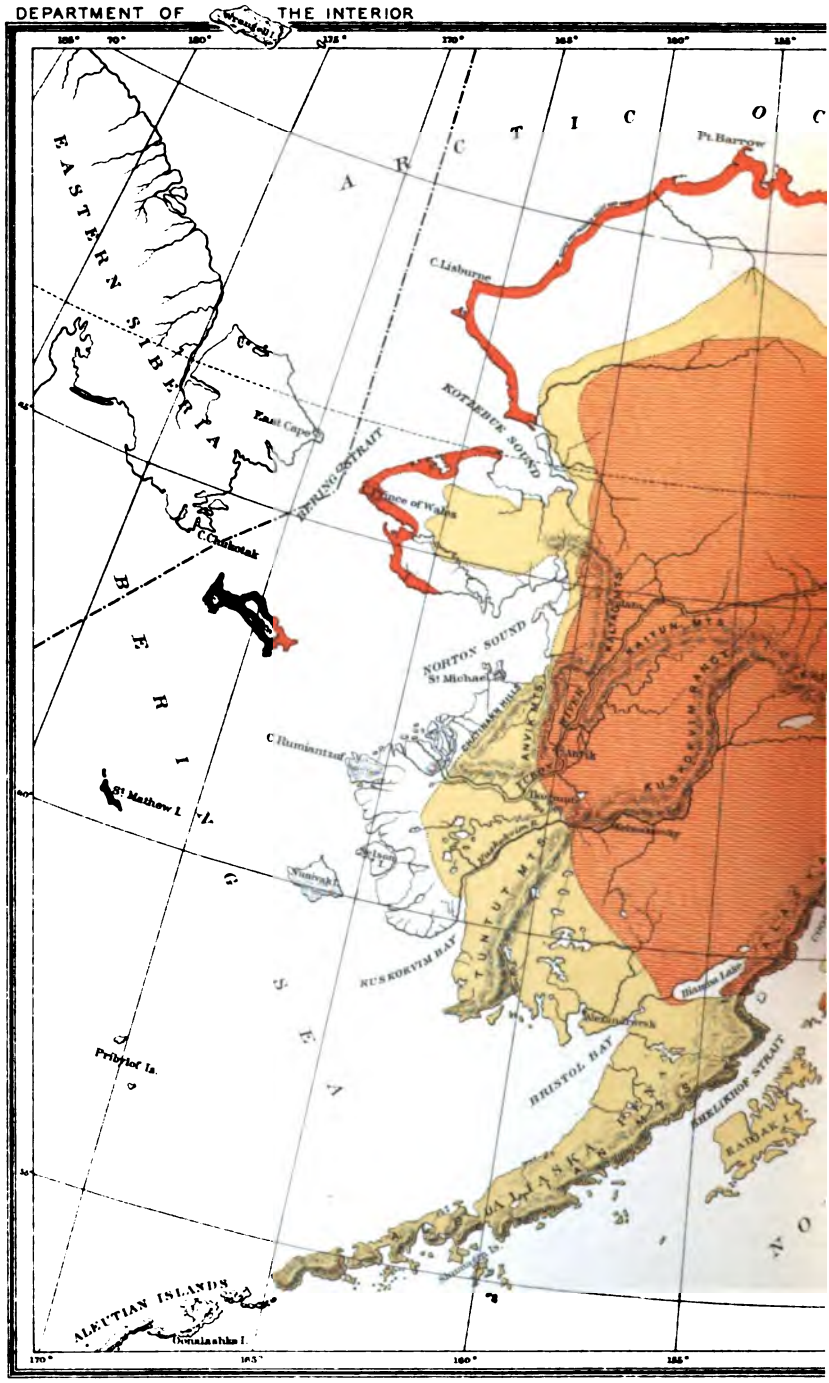
The land otter is found on the whole coast of Alaska, from the southern boundary to the northern shore of Norton Sound. It also occurs on all the islands inside of these limits as far as Unimak in the west and Nunivak in the north. Within the Arctic Circle the land otter is confined to the upper courses of rivers emptying into Kotzebue Sound and the Arctic Ocean, such as the Colville, the Kok, the Inland, and Selawik. It is found also along the whole course of the Yukon as far as known, along the Kuskokvim, and all over the delta lying between the mouths of these rivers, in the valleys of the Togiak and the Nushegak, and in nearly all parts of the Aliaska Peninsula and Unimak Island, as well as on the Kadiak Archipelago, the shores of Cooks Inlet, on the Kinik and Sushetno rivers emptying into the same, on Prince William Sound, and on the Copper River. The traders report the land otter also along the whole coast from Mount St. Elias to the southern boundary, with the exception of the smaller islands.

THE BEAVER (*Castor fiber*).—The beaver was once one of the most important among the fur-bearing animals of continental Alaska, but both in supply and demand a great decline has taken place during the last half century. It would seem that the smaller demand would cause an increase in the supply, but this has not been the case. Throughout the whole interior region north of Cooks Inlet and south of the Yukon River the beavers have frequently suffered from excessive and prolonged cold during the winter, the ice in rivers and ponds forming so rapidly and to such thickness that the animals found it impossible to keep open the approaches to their dwellings under water, and they died from starvation before the thaws of spring opened their prisons. The Indians of the Kinik and Tennanah rivers state that after an extraordinarily cold winter they have frequently found the putrefying carcasses of hundreds of beavers in their so-called lodges. Thousands of old beaver dams all over the continental portion of Alaska also testify to the former abundance of the animal, which now is thinly scattered over the same ground. At nearly every trading post throughout Alaska where beaver skins are at all secured hundreds are purchased now where thousands appear on former records.

The northern limit of the beaver seems to be but little to the southward of that of the land otter—considerably above the Arctic Circle—being identical with the limit of trees. Skins are obtained from the natives living on the northern tributaries of the Yukon River, which have passed into the hands of the latter from the head waters of the Colville and other rivers emptying into the Arctic.

All the streams emptying into Kotzebue Sound are still inhabited by the beaver, and it is found on the east shore of Norton Sound, along the whole course of the Yukon and its tributaries, among all the lakes and streams of the Yukon and Kuskokvim deltas, in the lake and river systems of the Togiak and Nushegak, about Lake Ilyamna and the lakes and rivers of the Aliaska Peninsula down to a line identical with that forming the northern boundary of the Aleutian tribe. On the shores of Cooks Inlet and the rivers emptying into the same the beaver is still comparatively plentiful, especially in the vicinity of the large lakes occupying the central portion of the Kenai Peninsula. Beaver skins are also obtained from the natives occupying the head waters of Copper River and the series of lakes connecting the river with the Kinik and the Sushetno rivers.

In the southeastern section of Alaska, west of Mount St. Elias, traders report the existence of the beaver on streams and rivers of the


DEPARTMENT OF THE INTERIOR
Wrangel Isl.
EASTERN SIBERIA
ARCTIC OCEAN
Pt. Barrow
C. Lisburne
KOTZEBUE SOUND
Yakut Cape
BERING STRAIT
Prince of Wales
C. Chukotsk
BERING SEA
NORTON SOUND
St Michael
C. Rumiantsof
St Mathew I.
Nunivak I.
NUSKORVIM BAY
Pribilof Is.
BRISTOL BAY
KELLIKHOF STRAIT
KADIAK I.
ALASKA
ALEUTIAN ISLANDS
Unalaska I.
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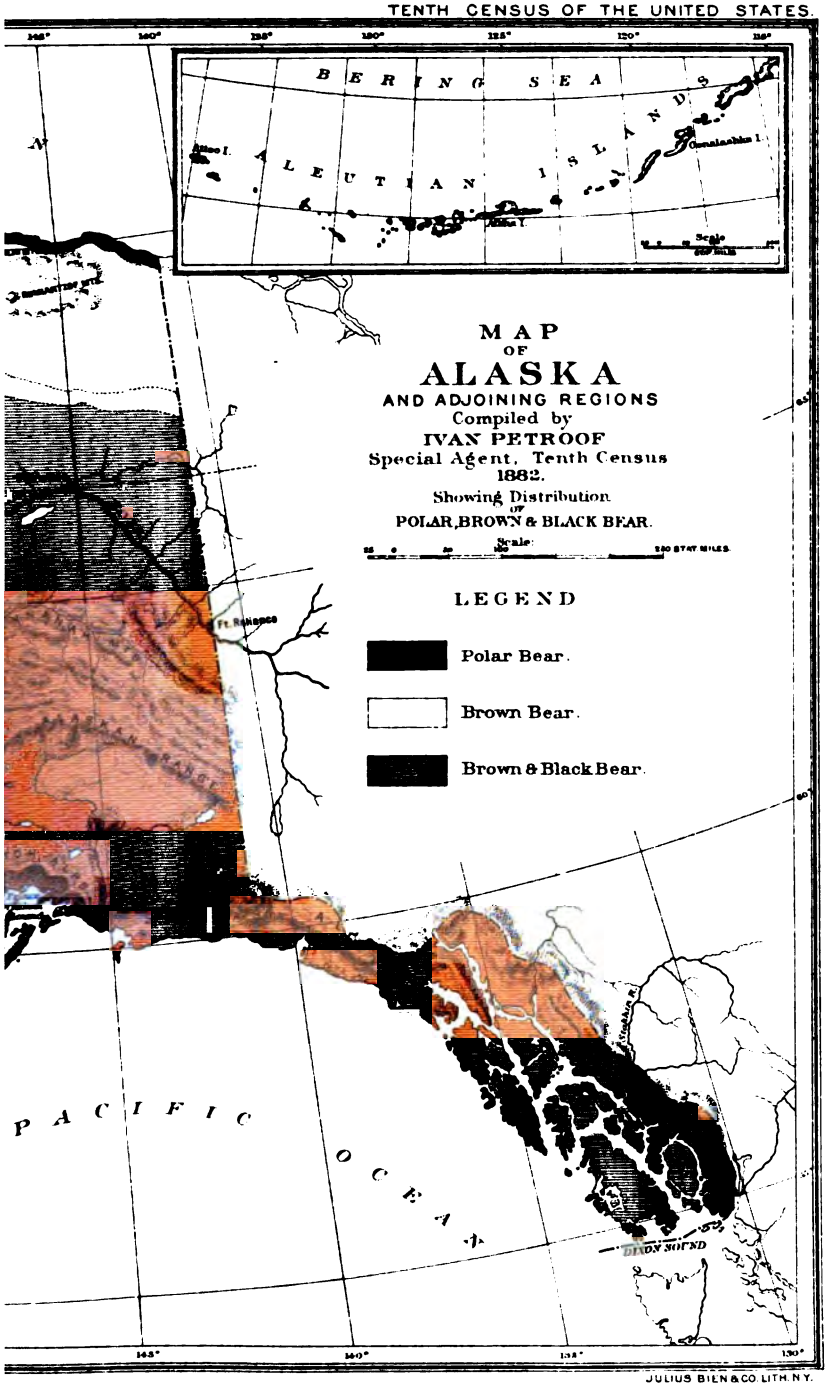
165°
160°
155°



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mainland, but it is probable that most of the skins obtained in that vicinity come really from the British possessions, whence all these rivers flow.

In the past, when the Hudson Bay Company reigned supreme throughout the beaver country of northwestern America, the skins of these animals represented in trade the value of an English shilling each, and were used and accepted as common currency. Within the Russian possessions the value was always somewhat higher, and at the present time the price of a beaver skin of average size in Alaska is from $1.50 to $2, according to weight.

The Indians of the interior and a few of the Eskimo tribes look upon the meat of the beaver as a great delicacy; it is a dish that is always set before honored guests, and is much used during festivities. The long incisors of the beaver form an important item in the domestic economy of the natives who hunt this animal, the extraordinary hardness of these teeth making it possible to use them in the manufacture of chisels, small adzes, and other tools used in the working of wood and bone. Under the rule of the Russian-American Company the exportation of castoreum was quite extensive, but now that article meets with no demand outside of the Chinese market, the Celestials still looking upon it as a valuable part of their materia medica.

THE BROWN BEAR (*Ursus richardsonii*).—The brown bear of Alaska, a huge, shaggy animal, varying in length from 6 to 12 feet, is distributed over nearly every section of Alaska, but seems to prefer an open, swampy country to the timber. The northern limit of this animal is about latitude 67° north, where it is found on the head waters of the rivers emptying into the Arctic, and occasionally on the streams emptying into Kotzebue Sound, and in the interior of the Kotzebue Peninsula. Being an expert fisher, the brown bear frequents, during the salmon season, all the rivers emptying into Bering Sea and the North Pacific and their tributaries as far as the fish will go, and at the end of the annual run of fish the animal retreats into the recesses of hills and tundra, where berries and small game are most plentiful. The banks of all the streams are lined on either side with the well-trodden trails of these huge animals, offering better facilities for the progress of the traveler than do the paths of men. The brown bear is the great road-maker of Alaska, and not only are the swampy plains intersected with paths made by him in all directions, leading generally to the easiest fording places of streams and rivers, but the hills and ridges of mountains to the very top show the traces of this omnipresent traveler. He shows great judgment and local knowledge, for his road up the mountain is as safe to follow as is the most practicable route. In greatest numbers this animal is found in the region between the lower Kuskokvim, the Togiak, and the Nushegak rivers, and also on the Aliaska Peninsula and the island of Unimak. The island of Kadiak is full of this species of bear, but the largest specimens are shipped from the coast of Cooks Inlet. The skin of a bear that had been killed in the vicinity of the Kenai mission during last summer (1880), which I measured, was 14 feet 2 inches in length. On the steep sides of the volcanic range of mountains, on the west side of Cooks Inlet, brown bears can be seen in herds of 20 or 30. Their skins are not very valuable, and, owing to this fact and to the fierce disposition of the animals, they are not commonly hunted. All natives of Alaska respect them, and it is the universal custom of hunters to address a few complimentary remarks to the intended victims before attempting to kill them. Perhaps the skins of fully one-half of the brown bears killed throughout Alaska are

retained by the natives for bedding and to hang before the entrances of houses in the place of doors. The smaller skins are tanned and cut up into straps and lines, and the natives of the interior utilize them for manufacturing sledge fastenings and the network bottoms of snow-shoes, because this leather does not stretch when exposed to moisture, as moose and deer skins do.

THE BLACK BEAR (*Ursus americanus*).—The black bear of Alaska is widely distributed over the continental portion of the Territory, but is generally confined to regions of timber and mountains; as far as known, it exists only on a few islands in Prince William Sound and on Kaiak Island. The northern limit of the black bear extends, according to observations made by Mr. E. W. Nelson, even beyond that of his brown cousin. It is said to exist farther down the rivers emptying into the Arctic, and to be quite plentiful thence southward to the valley of the Yukon. The western limit of the region where the black bear is found is perhaps a line drawn from the Selawik River southeastward to Nulato, and thence across to the Kuskokvim River in the vicinity of Kalmakovsky. From the upper Nushegak many skins are obtained, and one trader reports black bear even west of this line, on the lower left bank of the Kuskokvim and on the Togiak Peninsula, but as that region is not timbered the statement appears doubtful. From Bristol Bay eastward the black bear is confined to the timbered regions about Lake Ilyamna, but is more plentiful on the coast of Cooks Inlet and in the interior of the Kenai Peninsula. From the head waters of the Yukon, Tennanah, Sushetno, Kinik, and Copper rivers many black-bear skins are brought down to the seacoast, and from Prince William Sound and eastward the mountains and forests harbor large numbers of these animals. These skins command high prices and are still increasing in value, but the animals are shy, and to hunt them requires much time and patience. The natives do not fear them in the least, and, in fact, it is considered the work of boys to kill them. Owing to its value, probably, the natives never use the black-bear skin for bedding. The glossiest and largest of these skins come from the St. Elias alpine range and the vicinity of Prince William Sound; but the black bear never attains the size of the brown variety.

THE RED FOX (*Vulpes fulvus*).—The only fur-bearing animal found in every section of Alaska is the red fox. From Point Barrow to the southern boundary, and from the British line to the island of Attu, this animal is ever present. It varies in size and quality of its fur from the finest Nushegak variety, equal to the high-priced Siberian fire fox, down to the diminutive, yellow-tinged specimen that rambles furtively over the rocky islands of the Aleutian chain. Its color gives variety among the uniform snow-white robes of its polar cousin along the Arctic shore, and with the unwelcome persistency of the poor relation it mingles with the aristocratic black and silver foxes, always managing to deteriorate in course of time the blood and coating of the "first families." Mountain or valley, forest or swampy plain, all seem to be the same to him. The red fox seems perfectly indifferent in regard to his diet, fish, flesh, and fowl being equally to his taste, with such little entremets as shellfish, mussels, and eggs of aquatic birds. He has an advantage over his fellows in the fact that his skin is cheap, and the natives do not eat his flesh except as a last resort in times of famine. They hunt or trap the red fox only when nothing else can be obtained; the interior tribes, however, make winter garments of their skins.

Being an inveterate and intrepid traveler, the red fox is not above making an occasional sea voyage on the ice, which explains his presence

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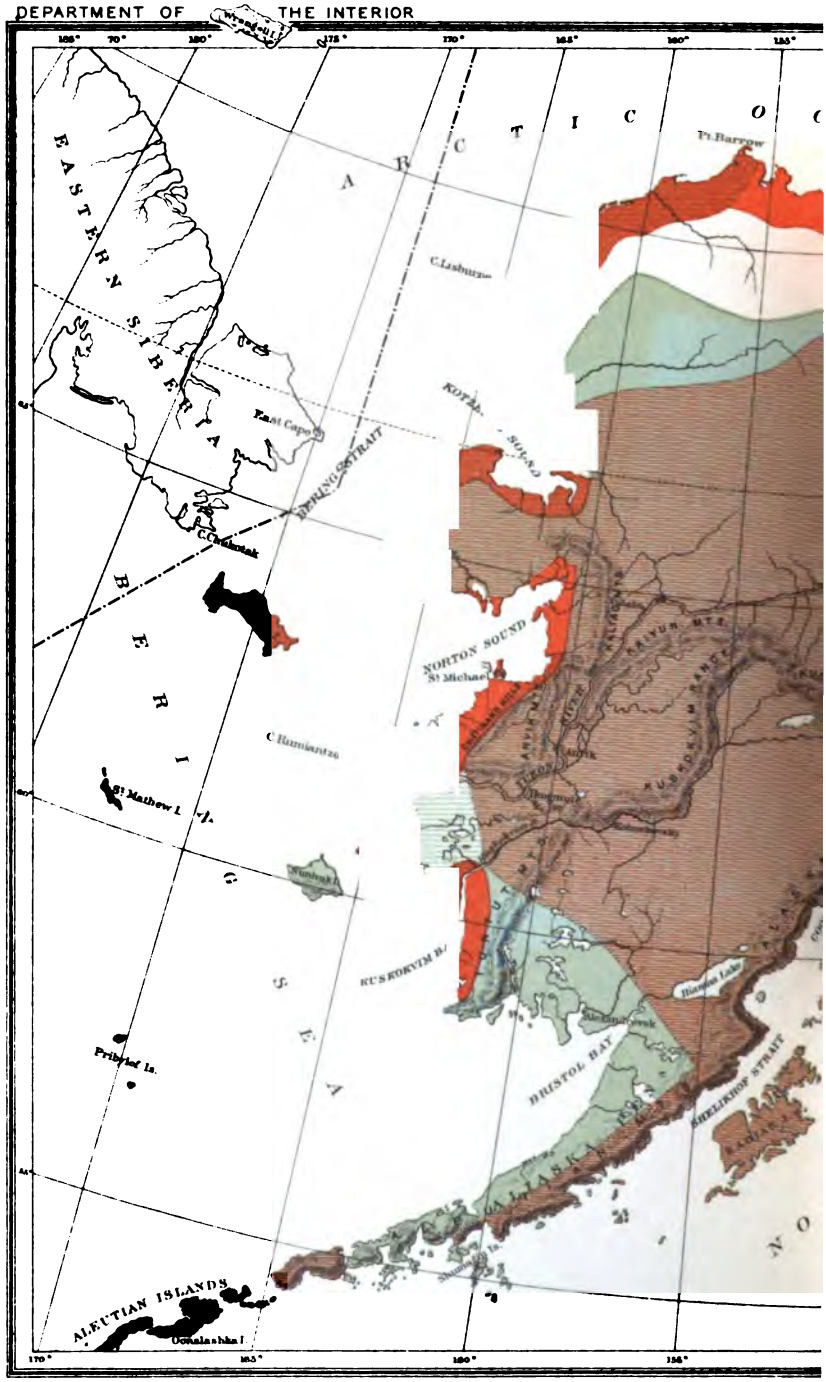

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on all the islands of the Aleutian chain, the Shumagin group, and even on St. Lawrence and the Pribilof islands, over a hundred miles from any other land. It is common practice among both Innuit and Indian tribes in the north to make household pets of young foxes whenever they can be secured alive. The average price of red-fox skins throughout the country is about $1.

THE BLACK OR SILVER FOX (*Vulpes fulvus*, var. *argentatus*) AND THE CROSS FOX (*Vulpes fulvus*, var. *decussatus*).—The king among the various tribes of the *vulpes* family is the black or silver fox. He is found in his prime in the mountain fastnesses of the interior and on the head waters of the larger rivers. Here he appears of large size, with long, soft, silky fur, varying in color from a silver tint to deep jet-black, the latter being the most rare and highly valued. These two qualities are found principally in the mountains on the boundary between southeastern Alaska and British Columbia, in the country of the Chilkhats and the Takoos, on the upper Copper River, the Kenai Peninsula, and on the Sushetno and Kinik, the upper Yukon, Tennanah, and Kuskokvim rivers. In the last-named regions the traders pay from $10 to $15 for each skin, but in southeastern Alaska, where competition is more fierce, as much as $40 or $50 in coin are frequently paid for a single skin. Along the Yukon and its northern tributaries the black fox of an inferior quality is found almost on the seacoast and on the shores of Norton Sound and in the interior of the Kotzebue Peninsula. The animal is also reported to exist on the head waters of the Colville River up to the sixty-eighth degree of latitude. Black foxes are quite plentiful on Kadiak Island, and they occur on the Shumagin group, Oonimak Island, and on most of the Aleutian Islands as far as Atkha, but to many of these points they have been imported through the agency of man. On the timberless highlands of the Far West the fur of these animals seems to deteriorate in quality.

Another species of the fox family is generally found with the silver fox, forming, in fact, the connecting link between the red plebeian and the black aristocrat. This is the cross fox, partaking of the distinguishing qualities of both the red and black, evidently the result of unrestrained intermixture. The quality and the color of the fur of the cross fox come much nearer those of the red, and the skin of the former exceeds that of the latter but little in value—from $2 to $3 being paid for the best of them. While the distribution of the cross fox is naturally almost identical with that of the silver variety, the animal is found farther westward on the Aleutian Islands, and is more frequent on the Aliaska Peninsula, though on the islands of Prince William Sound and on Kaiak Island both the black and cross varieties exist.

The skins of silver foxes form the most important element in the trade of the whole Yukon Basin, being almost the only high-priced skins found in that vicinity, but they are by no means numerous. The only section of Alaska where these animals are of the best quality and in large numbers at the same time is in the mountains about the Chilkhat and Takoo rivers, and there the reckless competition leaves but little margin for profit.

THE ARCTIC FOX (*Vulpes lagopus*—blue and white).—Of the Arctic fox we find in Alaska two varieties—one white and the other a bluish gray, commonly called "blue fox" by the traders. The white fox is found along the coast of continental Alaska from the mouth of the Kuskokvim northward to Point Barrow and the eastern boundary. Its fur is of a snowy white, especially in the young, and both soft and

long; but, owing to the lack of durability, it does not command a high price in the market.

The animal is very numerous northward of Norton Sound, and not at all shy. Natives and travelers alike report instances of the fearlessness with which these foxes enter their camps, and even dwellings, in search of food or out of mere curiosity. A large portion of the skins secured by Eskimo and other natives are used by themselves for trimming their garments, and the remainder falls chiefly into the hands of whalers and whisky smugglers, so that it is impossible to obtain accurate figures as to the annual catch. They may be called omnivorous, and they refuse nothing that will fill their stomachs. I observed one sleek and apparently well-fed specimen which devoured nearly the whole of a large salmon, and afterwards worried down with considerable difficulty a thick leather strap with a heavy buckle attached to it. In the depth of winter the natives find it unsafe to leave any article of clothing, dog harness, or boat material within their reach.

The blue fox exists now on several of the Aleutian Isands, where it was found by the first discoverers in 1741. The animal is also found on the Pribilof Islands, and here, where it has been possible to protect the species against intermixture with other and inferior foxes, the skins are of the finest quality, commanding a high price in the market. Traders report the existence of the blue fox to a limited extent in the vicinity of Oogashik, on the Aliaska Peninsula, and also on the lower Kuskokvim; and it occurs also on the delta between the mouths of the Yukon and Kuskokvim. Captain Hooper, of the revenue marine, who commanded the United States steamer *Corwin* during two successive cruises in the Arctic, reports that he saw blue foxes at Cape Espenberg, Elephant Point, Hotham Inlet, Point Hope, Point Belcher, and Point Barrow. The same gentlemen also states that he "found the blue fox much more plentiful on the Siberian than on the American Coast, and that all the blue foxes in the far north are so inferior to those on the islands of Bering Sea as to suggest the possibility of their being a different species." Even on the Arctic Coast Captain Hooper saw blue foxes, taken at the same time and place, differing very much in the color and quality of the fur. On the Pribilof Islands, from 1,000 to 1,500 of the best quality of blue-fox skins are annually shipped, and several hundred of a little inferior quality from Attoo and Atkha islands, but it is impossible to ascertain the quantity obtained along the Arctic Coast by whalers and illicit traders.

THE MINK (*Putorius vison*).—The Alaska mink is distributed almost as widely as the red fox, but does not extend to the islands. It is most plentiful in the vast tundras or mossy marshes of the lower Yukon, Kuskokvim, Togiak, and Nushegak basins. The skin is of very little value; the Russian-American Company did not purchase it at all, and even now the trade in this article is confined chiefly to the natives, who manufacture it into garments or use it for trimming. No more than 10,000 or 15,000 of these small skins are exported annually. The northern limit of the mink is but little south of the Arctic Coast, and from thence southward it is found everywhere throughout the continent until its southern and western limits are reached on the Aliaska Peninsula on a line between Cape Stroganof and Sutkhum Island. The only islands on which minks are found to exist are those in Prince William Sound and perhaps some of those in the Alexander Archipelago. No skins of this kind shipped from any portion of Alaska equal in quality or value those of British Columbia, Washington Territory, and Oregon, the traders simply buying them for the sake of accommodating their

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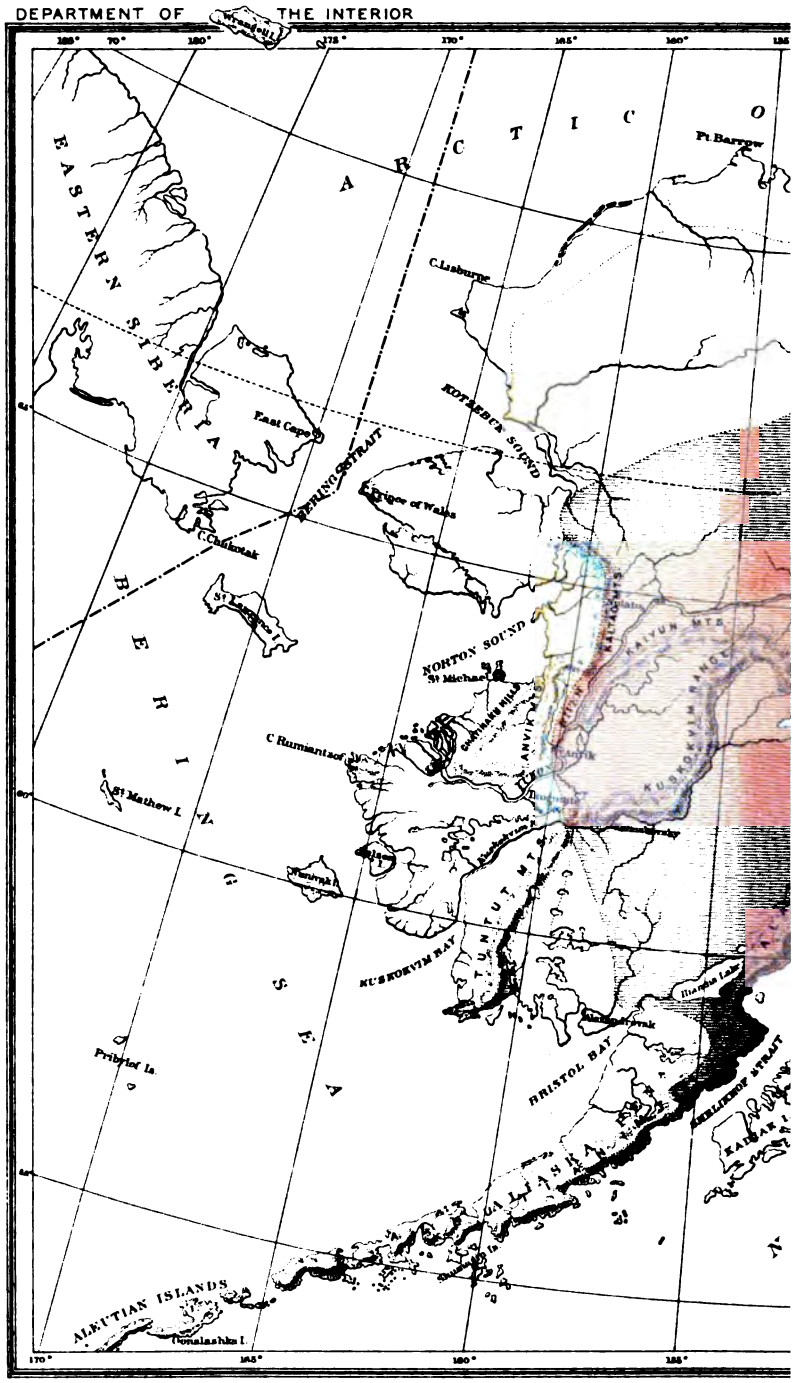

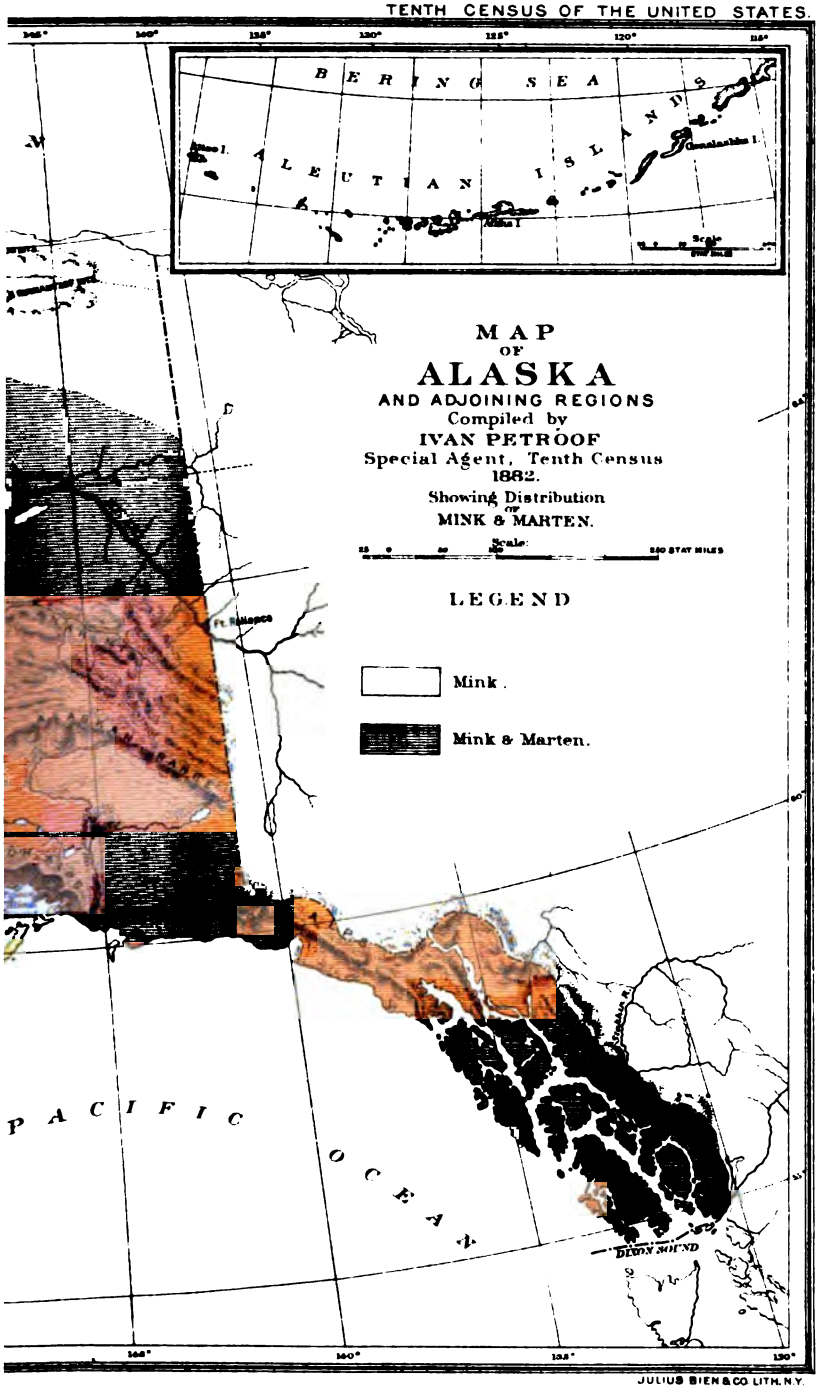

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customers. The region about Togiak River and lakes, which furnishes scarcely any other fur than mink, has for that reason been entirely neglected by traders. Until a year ago no white man had penetrated into the recesses of the tundras, and the inhabitants, having no intercourse with civilized men, are still in their primitive condition of barbarism. The natives living on the Yukon and Kuskokvim deltas are called "mink people" in derision by their neighbors—a term equivalent to beggar.

THE MARTEN (*Mustela americanus*).—The limits within which the marten is found throughout Alaska are almost identical with those of standing timber. The animal is found occasionally as far north as latitude 68°, and inhabits the valleys of the Yukon, Kuskokvim, and Nushegak rivers from the head waters down as far as timber exists, on the wooded mountain ranges of Cooks Inlet and the Kenai Peninsula. On the Chugatch alps, the Copper River range, and the St. Elias alps martens are plentiful and of the finest quality. Very fine skins of this kind are also purchased by the traders in southeastern Alaska, a portion of these probably being obtained from the British Possessions. The Alaskan marten or sable is inferior to the Siberian fur of that name ("sable" is simply a corruption of the Russian word for marten "sobol," and is by no means a distinct animal). The Russian-American Company considered the Alaska sable of so little value that they did not export it at all from the colonies, but sold the whole catch to officers and employees of the company. The price set upon these skins under those circumstances was small indeed, being only 10 cents each. After the transfer of the Territory a demand for them arose, and in a few years of competition raised the price to $4, $5, and even $6, much to the delight of the astonished natives; but the inferiority of the article soon made itself felt, and reaction set in until at the present day the price of marten skins in northwestern Alaska does not exceed $1.50, though in the southeastern section excessive competition still keeps up a higher figure.

A few more fur-bearing animals existing in Alaska may be mentioned, but they are not of sufficient importance to deserve more than a passing notice. The polar bear is found only on the Arctic Coast, where ice in large bodies exists, and with the moving ice fields he enters and leaves the waters of Bering Sea. The number of skins annually secured forms but a very small item in the bulk of trade.

The lynx is found only in the wooded mountains of the interior on the Kenai Peninsula and the St. Elias range of mountains, the skins being used chiefly for carriage robes and trimming, but the fur is not durable.

Wolves, both gray and white, are found, but are rarely killed.

Muskrats exist all over Alaska, but the skins are at most valueless, and but few are shipped away.

Rabbits and marmots are killed only for their flesh, and occasionally the natives use the skins of the latter for the garments of the poor.

Wolverines are rarely exported, as they find a ready market among the inhabitants of the coast region of the Yukon and Kuskokvim divisions, who prefer this shaggy piebald fur to any other trimming for their garments.

EXPORTS OF FURS FROM ALASKA.

The first authentic list of fur shipments from Russian America was compiled at the beginning of the present century by Lieut. Vassili Berg, of the Russian navy, who, having access to all the archives of

Petropavlovsk, Nishnekamchatsk, Bolsheretzk, and Okhotsk, included in his list all the importations from America from 1745 to 1797, with the exception of one cargo, containing nearly 4,000 sea-otter skins (the ship *Vladimir*, Captain Zaïkof, in 1779). With the year 1797 the systematic operations of the Russian-American Company began, though their charter was not promulgated until a year or two later, and from that time forth official tabulated statements of furs shipped from the colonies were published from time to time. Other tables can be found in the works of various authors and travelers, but it is safe to state that, generally speaking, the totals thus furnished were below the actual yield of furs. These tables, furthermore, do not include the large shipments of sea-otter furs from the Alexander Archipelago by American and English traders at the end of the last and the beginning of the present century, aggregating at least 20,000 or 30,000 skins. The transactions of Baranof, the first chief manager of the Russian-American Company, who paid for many ships' cargoes of provisions and trading goods in fur-seal skins, were also ignored, and no account was kept of losses by the frequent shipwrecks and through carelessness of subordinate employees. Thus, in one instance, the captain of the ship *Nadaishda*, in 1805, was obliged to throw overboard 30,000 fur-seal and several hundred sea-otter skins, which were found to have reached an advanced stage of putrefaction in the hold of the vessel. The naturalist, Langsdorff, who accompanied Lissiansky in his voyage around the world, learned from the sealers stationed on St. Paul Island that they had killed at least 30,000 fur seals for their blubber only, the skins having been thrown into the sea for lack of time, hands, and fuel to cure them.

The incompleteness of the official Russian returns is easily demonstrated by comparison. One of these reports, covering the period from 1821 to 1842, gives the total shipment of furs as follows: Of sea otter 25,416, or an annual average of 1,210; of fur seal 458,502, or an annual average of 21,833, and of beaver 162,034, or an annual average of 7,716. Another partial report, yet also official, covers seven years of the same period, but shows results quite different. The annual average computed from the latter would be 1,407 of sea otter, 18,880 fur seal, and 5,711 beaver. The average annual yield in these furs, as computed from the company's official returns for the next twenty years, from 1842 to 1862, was 1,294 sea otter, 18,644 fur seal, and 7,874 beaver.

Large quantities of furs formerly found their way from the lower Yukon River and Norton and Kotzebue sounds to Siberia, through the hands of Chukche and Malemute traders, who obtained trading goods from Siberian merchants on the Anadyr and Indigirka rivers. These Alaskan furs were, of course, not included in any estimate, nor can I now give the number of skins purchased annually along the Arctic coast by the illegitimate traders who carry rum and breech-loading arms from the Hawaiian Islands and spread ruin and destruction along these ice-bound shores. From the persistency with which these men continue to assume the risks of this unlawful traffic it must be concluded that both its volume and profit are large.

From southeastern Alaska, also, large numbers of furs are carried into British Columbia, of which no record can be obtained, both natives and whites being there engaged in smuggling them aross the frontier. All this goes to show that all returns of Alaska's yield of furs always have been, and necessarily must be, below rather than above the reality.

The annexed tabular exhibit of fur shipments from Alaska since its first invasion by Siberian fur traders has been compiled from records

found in the archives of the Russian-American Company, from Russian official reports and other publications, and from the books of the San Francisco custom-house, supplemented by statements furnished by the few firms engaged in the Alaskan trade. This table shows strikingly the extraordinary increase in the number of furs purchased annually since the transfer of Alaska to the United States. This discrepancy may, however, be only apparent to a certain extent, and could probably be much reduced were the means at hand of ascertaining the reliability of Russian returns. The officials of the Russian-American Company were disposed to conceal the actual extent of their transactions, as the company, during the later period of its existence, was constantly striving to obtain a reduction of or relief from the vast expenditure (for administrative and protective purposes) imposed upon it by the imperial charter. Another factor in the deficiency of returns may be found in the dishonesty of subordinate employees of the Russian Company, who filled their own pockets at the expense of the shareholders. It was, however, the accepted policy of the managers of the corporation to keep the wants of the natives within the narrowest possible limits, and thereby to reduce as far as practicable the quantity of merchandise required for the colonial trade, which had to be shipped around the world at an enormous expense. Since the transfer of the country, on the other hand, and since the breaking up of the monopoly, the rival traders have vied with each other in dazzling the eyes of fortunate hunters with a lavish display of costly articles of luxury and delicacies for the palate, exciting them to the utmost exertion in the pursuit of fur-bearing animals.

Summary of furs shipped from Russian America and Alaska from 1745 to 1880.

By whom shipped.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.				
					Black.	Cross.	Red.	Arctic.	
								Blue.	White.
UNDER RUSSIAN RULE.									
Siberian traders, from 1745 to 1797	96,047	417,758	1,679	.....	10,421	15,147	14,961	62,361	.....
Shelikhof Company, from 1786 to 1797	15,647	139,266	3,360	428	4,625	5,222	5,704	600	.....
Russian-American Company:									
From 1798 to 1821	86,644	1,767,340	17,768	56,001	15,112	24,535	35,456	45,904	5,130
From 1821 to 1842	25,416	458,502	29,442	162,034	17,913	26,462	45,947	55,714	13,638
From 1842 to 1862	25,899	372,894	170,473	157,484	21,212	23,102	33,533	32,130	22,004
From 1862 to 1867	11,137	196,718	21,816	37,409	14,310	7,942	12,316	8,082	5,119
Total Russian shipments	260,790	3,354,478	244,538	413,356	83,593	102,410	147,917	204,791	45,891
SINCE PURCHASE BY THE UNITED STATES.									
By American traders:									
From 1867 to 1871	12,208	338,965	6,367	17,041	2,310	6,214	31,714	4,419	4,312
From 1871 to 1880	40,283	938,368	18,964	41,217	6,992	19,410	82,919	7,508	11,492
Total American shipments	52,491	1,277,333	25,331	58,258	9,302	25,624	114,633	11,927	15,804
Grand total	313,281	4,631,811	269,869	471,614	92,895	128,034	262,550	216,718	61,695

Summary of furs shipped from Russian America and Alaska, etc.—Continued.

By whom shipped.	Bear.		Mink.	Marten.	Muskrat.	Wolverine.	Lynx.	Wolf.
	Black.	Brown.						
UNDER RUSSIAN RULE.								
Siberian traders, from Shelikhof Company, from 1745 to 1797	.....	.....	.....	.....	.....	.....	.....	.....
1786 to 1797	.....	.....	.....	200	.....	.....	.....	.....
Russian-American Company:								
From 1798 to 1821	.....	2,650	5,345	17,921	.....	1,234	1,819	.....
From 1821 to 1842	.....	5,355	15,481	15,666	4,491	1,564	4,253	201
From 1842 to 1862	.....	1,893	12,701	13,682	6,570	10	6,927	24
From 1862 to 1867	.....	590	690	918	3,180	78	4,012	116
Total Russian shipments	.....	10,488	34,217	48,387	14,241	2,886	17,011	341
SINCE PURCHASE BY THE UNITED STATES.								
By American traders:								
From 1867 to 1871	121	1,910	32,100	24,311	17,908	.....	2,412	180
From 1871 to 1880	719	5,207	71,213	81,609	50,322	.....	6,312	421
Total American shipments	940	7,117	103,313	105,920	68,230	.....	8,724	601
Grand total	940	17,605	137,530	154,307	82,471	2,886	25,735	942

With the aid of the above table a computation may be made as to the average earnings of the native hunter in disposing of his furs to the traders. The returns from the southeastern division are incomplete and partly inaccessible, and therefore the calculation is confined to the people living west of the one hundred and forty-first meridian.

During the ten years from 1870 to 1880 the purchases of furs by traders from natives aggregated—

40,283 sea otter, at $60, worth	$2,416,980.00
18,964 land otter, at $2.50, worth	47,410.00
41,217 beaver, at $2.50, worth	103,042.50
6,992 black fox, at $15, worth	104,880.00
19.410 cross fox, at $2.50, worth	48,525.00
82,919 red fox, at $1, worth	82,919.00
7,508 blue fox, at $2, worth	15,016.00
11,492 white fox, at $1, worth	11,492.00
819 black bear, at $3, worth	2,457.00
5,207 brown bear, at $1.50, worth	7,810.50
71,213 mink, at 20 cents, worth	14,242.60
81,609 marten, at $2, worth	163,218.00
50,322 muskrat, at 5 cents, worth	2,516.10
6,312 lynx, at $2, worth	12,624.00
421 wolf, at $1.50, worth	631.50
Total	3,033,764.20

Average for one year, $303,376.42, which sum, divided between 3,000 families, would give each an annual income of about $100 from this source. The earnings of the Arctic Innuit are not included in this calculation, their furs not appearing in the above list. Another exception are the inhabitants of the Pribilof or fur-seal islands, who divide over $40,000 every year among less than 100 families. It is also necessary to state that about 400 families divide the proceeds of the whole sea-otter catch, amounting to from $250,000 to $300,000 per annum.

The official report of State Counselor Kostlivtzof, who was appointed in 1861 to investigate the affairs of the Russian-American Company, contains a table exhibiting the purchases of furs from natives of Alaska during a period of nineteen years, from 1842 to 1860, inclusive. This table is arranged by districts and stations, and has been transcribed in full from the Russian original so far as it confines itself to the limits of the present Alaska. The operations of the Russian-American Company embraced also a few localities not included in the transfer of territory from Russia to the United States.

Summary of furs purchased by the Russian-American Company in Alaska from 1842 to 1860.

When and where purchased.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.	Arctic fox.	Bear.	Mink.	Marten.	Muskrat.	Lynx.	Wolverine.	Wolf.
1842.													
Sitka	131	2	162	236	129	.....	168	631	182	68	14	11	4
Kadiak	342	.....	1,018	6,198	3,175	.....	136	37	.....	3,210	100	35	3
Ounga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unalaska	333	.....	58	.....	1,691	.....	.....	.....	.....	.....	.....	.....	4
Atkha	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Attoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Paul Island	.....	7,600	.....	.....	.....	505	.....	.....	.....	.....	.....	.....	.....
St. George Island	.....	2,570	.....	.....	.....	1,491	.....	.....	.....	.....	.....	.....	.....
Kalmakovsky	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Michael	.....	.....	240	2,088	532	549	.....	73	58	300	36	.....	.....
Total	806	10,172	1,478	8,522	5,527	2,545	304	741	240	3,578	150	46	11
1843.													
Sitka	198	.....	241	328	101	.....	100	40	120	16	.....	9	7
Kadiak	294	.....	1,028	6,592	2,022	.....	122	60	861	.....	111	.....	1
Ounga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unalaska	281	.....	65	.....	1,583	.....	.....	2	.....	.....	.....	1	3
Atkha	281	931	.....	.....	.....	986	.....	.....	.....	.....	.....	.....	.....
Attoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Paul Island	.....	10,236	.....	.....	.....	515	.....	.....	.....	.....	.....	.....	.....
St. George Island	.....	1,004	.....	.....	.....	1,377	.....	.....	.....	.....	.....	.....	.....
Kalmakovsky	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Michael	.....	.....	274	3,004	300	424	.....	.....	11	64	33	.....	.....
Total	1,054	12,171	1,608	9,924	4,006	3,302	222	102	992	80	144	10	11
1844.													
Sitka	81	.....	140	291	3	1	20	2	250	.....	3	11	1
Kadiak	191	.....	727	5,580	1,691	.....	54	96	346	6	27	56	4
Ounga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unalaska	267	.....	97	.....	1,147	.....	.....	.....	.....	.....	.....	.....	4
Atkha	387	756	.....	.....	237	1,109	.....	.....	.....	.....	.....	.....	.....
Attoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Paul Island	.....	11,094	.....	.....	.....	394	.....	.....	.....	.....	.....	.....	.....
St. George Island	.....	830	.....	.....	.....	1,343	.....	.....	.....	.....	.....	.....	.....
Kalmakovsky	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Michael	.....	.....	250	3,180	278	174	2	.....	29	.....	5	.....	.....
Total	926	12,680	1,214	9,051	3,356	3,021	76	98	625	6	35	67	9
1845.													
Sitka	144	.....	164	192	80	.....	30	.....	262	.....	.....	14	9
Kadiak	343	.....	731	4,240	1,945	.....	88	78	574	145	63	57	6
Ounga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Unalaska	335	.....	67	.....	1,134	.....	.....	.....	.....	.....	.....	.....	2
Atkha	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Attoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Paul Island	.....	12,637	.....	.....	.....	365	.....	.....	.....	.....	.....	.....	.....
St. George Island	.....	1,000	.....	.....	.....	1,366	.....	.....	.....	.....	.....	.....	.....
Kalmakovsky	.....	.....	76	1,646	135	.....	3	.....	.....	.....	10	.....	.....
St. Michael	.....	.....	320	2,607	504	138	6	.....	149	.....	27	.....	.....
Total	822	13,637	1,358	8,685	2,796	1,869	127	78	985	145	100	71	17

ummary of furs purchased by the Russion-American Company in Alaska, etc.—**Continued.**

When and where purchased.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.	Arctic fox.	Bear.	Mink.	Martens.	Muskrat.	Lynx.	Wolverine.	Wolf.
1846.													
Sitka	142	.....	158	107	78	.....	4	6	192	.....	....	10	2
Kadiak	266	.....	418	4,855	628	.....	72	154	1,629	.....	124	101	6
Ounga	64	.....	74	.....	511	.....	.....	.....	.....	.....	....	....	....
Unalaska	255	.....	5	.....	1,023	.....	.....	.....	.....	.....	....	....	....
Atkha	398	.....	.....	.....	61	1,788	.....	.....	.....	.....	....	....	....
Attoo	91	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	14,053	.....	.....	.....	528	.....	.....	.....	.....	....	....	....
St. George Island	.....	1,017	.....	.....	.....	1,418	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	52	2,091	79	.....	10	.....	.....	.....	5	....	....
St. Michael	.....	.....	227	3,623	408	132	3	.....	47	.....	33	....	....
Total	1,216	15,070	934	10,676	2,788	3,866	89	160	1,868	.....	162	111	8
1847.													
Sitka	158	.....	119	58	29	.....	3	.....	51	.....	....	11	1
Kadiak	251	.....	361	3,601	692	.....	69	101	1,585	152	151	55	....
Ounga	214	.....	60	.....	421	.....	.....	.....	.....	.....	....	....	....
Unalaska	186	.....	5	.....	1,746	.....	.....	.....	.....	.....	....	....	....
Atkha	87	.....	.....	.....	27	235	.....	.....	.....	.....	....	....	....
Attoo	84	.....	.....	.....	.....	284	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	16,703	.....	.....	.....	515	.....	.....	.....	.....	....	....	....
St. George Island	.....	1,000	.....	.....	.....	1,354	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	100	2,395	236	.....	8	.....	.....	.....	49	....	1
St. Michael	.....	.....	179	3,404	293	161	5	.....	.....	.....	111	....	....
Total	980	17,703	824	9,458	3,444	2,549	85	101	1,636	152	311	66	2
1848.													
Sitka	95	.....	114	48	7	.....	10	54	55	.....	15	2	....
Kadiak	397	.....	300	5,544	1,215	.....	109	74	948	60	178	19	4
Ounga	109	.....	66	.....	634	.....	.....	.....	23	.....	....	1	....
Unalaska	230	.....	.....	.....	1,180	.....	.....	.....	.....	.....	....	....	....
Atkha	113	.....	.....	.....	19	130	.....	.....	.....	.....	....	....	....
Attoo	91	.....	.....	.....	.....	274	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	13,650	.....	.....	.....	461	.....	.....	.....	.....	....	....	....
St. George Island	.....	1,000	.....	.....	.....	1,298	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	75	1,949	333	.....	14	.....	.....	.....	20	....	....
St. Michael	.....	.....	207	2,749	469	13	3	20	96	490	110	....	....
Total	1,035	14,650	762	10,290	3,857	2,176	136	148	1,122	550	323	22	4
1849.													
Sitka	164	.....	136	623	33	.....	4	54	65	.....	10	6	....
Kadiak	256	2	490	4,335	2,151	.....	60	75	1,276	146	269	69	4
Ounga	185	.....	74	.....	358	.....	.....	.....	.....	.....	....	1	....
Unalaska	195	.....	7	.....	423	.....	.....	.....	.....	.....	....	1	....
Atkha	148	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
Attoo	238	.....	.....	.....	.....	222	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	20,450	.....	.....	.....	519	.....	.....	.....	.....	....	....	....
St. George Island	.....	1,000	.....	.....	.....	1,069	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	78	1,436	298	.....	8	.....	.....	.....	15	....	....
St. Michael	.....	.....	269	2,543	637	41	2	.....	175	.....	124	....	....
Total	1,186	21,452	1,054	8,937	3,900	1,851	74	129	1,516	146	418	77	4
1850.													
Sitka	260	1	128	430	105	.....	13	30	200	.....	9	9	....
Kadiak	292	.....	400	4,679	2,145	.....	116	69	993	210	264	122	6
Ounga	236	.....	64	.....	439	.....	.....	.....	.....	.....	....	....	1
Unalaska	239	.....	1	.....	680	.....	.....	.....	.....	.....	....	....	....
Atkha	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
Attoo	298	.....	.....	.....	.....	170	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	6,270	.....	.....	.....	519	.....	.....	.....	.....	....	....	....
St. George Island	.....	500	.....	.....	.....	1,073	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	73	1,077	285	.....	7	.....	.....	.....	28	....	....
St. Michael	.....	.....	124	2,505	793	24	22	.....	64	686	196	....	....
Total	1,358	6,771	790	8,691	4,447	1,786	158	99	1,257	896	497	131	7

Summary of furs purchased by the Russian-American Company in Alaska, etc.—Continued.

When and where purchased.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.	Arctic fox.	Bear.	Mink.	Marten.	Muskrat.	Lynk.	Wolverine.	Wolf.
1851.													
Sitka	111	.....	65	462	22	.....	1	144	189	.....	....	6	....
Kadiak	416	.....	253	4,442	1,047	.....	99	.....	173	473	60	93	....
Ounga	200	.....	39	.....	514	.....	.....	1	.....	.....	....	....	....
Unalaska	270	.....	2	.....	913	.....	.....	.....	.....	.....	....	....	....
Atkha	25	.....	.....	.....	90	126	.....	.....	.....	.....	....	....	....
Attoo	21	.....	.....	.....	253	.....	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	6,064	.....	.....	.....	517	.....	.....	.....	.....	....	....	....
St. George Island	.....	500	.....	.....	.....	1,263	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	45	1,166	339	.....	.....	.....	.....	.....	19	....	....
St. Michael	.....	.....	157	3,169	259	12	1	29	67	692	106	....	....
Total	1,043	6,564	561	9,239	3,437	1,918	101	174	429	1,165	185	99	....
1852.													
Sitka	46	.....	15	143	2	.....	.....	.....	24	.....	....	....	....
Kadiak	155	.....	448	3,196	1,637	.....	65	.....	503	.....	14	80	5
Ounga	232	.....	68	.....	468	.....	.....	6	.....	.....	....	....	....
Unalaska	233	.....	3	.....	1,481	.....	.....	.....	.....	.....	....	....	....
Atkha	91	.....	.....	.....	34	243	.....	.....	.....	.....	....	....	....
Attoo	123	.....	.....	.....	.....	294	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	6,225	.....	.....	.....	645	.....	.....	.....	.....	....	....	....
St. George Island	.....	500	.....	.....	.....	1,477	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	54	1,732	62	.....	.....	.....	.....	.....	11	....	....
St. Michael	.....	.....	116	1,720	630	77	5	.....	46	1,152	24	....	....
Total	880	6,725	704	6,791	4,314	2,736	70	6	573	1,152	49	80	5
1853.													
Sitka	1	.....	.....	79	.....	.....	2	.....	.....	.....	....	....	....
Kadiak	282	.....	248	6,179	589	.....	75	51	232	1,146	5	74	6
Ounga	242	.....	87	.....	517	.....	.....	.....	.....	.....	....	....	....
Unalaska	299	.....	3	.....	1,167	.....	.....	.....	.....	.....	....	....	....
Atkha	4	.....	.....	.....	285	185	.....	.....	.....	.....	....	....	....
Attoo	193	.....	.....	.....	.....	388	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	16,034	.....	.....	.....	641	.....	.....	.....	.....	....	....	....
St. George Island	.....	2,001	.....	.....	.....	1,238	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	48	2,640	163	113	.....	.....	.....	.....	....	....	....
St. Michael	.....	.....	250	3,174	454	30	3	70	122	568	15	....	....
Total	1,021	18,035	636	12,072	3,175	2,595	80	121	354	1,714	20	74	6
1854.													
Sitka	1	.....	.....	23	.....	.....	.....	30	21	.....	....	....	....
Kadiak	390	1	438	654	1,534	.....	22	8	238	167	3	46	1
Ounga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
Unalaska	268	.....	1	.....	721	.....	.....	.....	.....	.....	....	....	....
Atkha	9	.....	.....	.....	125	193	.....	.....	.....	.....	....	....	....
Attoo	74	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	24,146	.....	.....	.....	624	.....	.....	.....	.....	....	....	....
St. George Island	.....	2,000	.....	.....	.....	1,291	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	42	1,472	105	.....	.....	.....	.....	.....	1	....	....
St. Michael	.....	.....	442	3,855	288	4	3	1	254	.....	10	....	....
Total	742	26,147	923	6,004	2,773	2,112	25	39	513	167	14	46	1
1855.													
Sitka	3	.....	2	9	.....	.....	.....	.....	.....	.....	....	....	....
Kadiak	296	.....	253	6,837	735	.....	171	165	990	1,050	43	143	6
Ounga	673	.....	176	.....	646	.....	.....	.....	.....	.....	....	1	....
Unalaska	338	.....	2	.....	820	.....	.....	.....	.....	.....	....	....	....
Atkha	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
Attoo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
St. Paul Island	.....	6,584	.....	.....	.....	.....	.....	.....	.....	.....	....	....	....
St. George Island	.....	2,001	.....	.....	.....	1,128	.....	.....	.....	.....	....	....	....
Kalmakovsky	.....	.....	67	965	12	.....	.....	.....	.....	.....	3	....	....
St. Michael	.....	.....	347	1,594	470	36	2	33	502	235	4	....	....
Total	1,346	8,585	847	9,405	2,683	1,159	173	198	1,492	1,285	50	144	6

Summary of furs purchased by the Russian-American Company, etc.—Continued.

When and where purchased.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.	Arctic fox.	Bear.	Mink.	Marten.	Muskrat.	Lynx.	Wolverine.	Wolf.
1856.													
Sitka				15									
Kadiak	251		506	2,176	1,015		59	3	886		76	39	
Ounga	193		64		138								
Unalaska	215				344								
Atkha	86				71	159							
Attoo	325					280							
St. Paul Island		20,550				514							
St. George Island		3,000				1,145							
Kalmakovsky			88	1,161	260	99	16		450		10		
St. Michael			248	1,207	673	138	19	104	396	220	26		
Total	1,070	23,550	906	4,559	2,501	2,335	94	107	1,732	220	112	39	
1857.													
Sitka													
Kadiak	331		519	4,562	1,056		97	101	857	2,287	174	70	1
Ounga	273		49		290								
Unalaska	403				641								
Atkha	3				11	33							
Attoo	176					180							
St. Paul Island		18,082				1,417							
St. George Island		3,000				1,198							
Kalmakovsky													
St. Michael			375	2,683	1,059	159			1,387	52	33	52	
Total	1,186	21,082	943	7,245	3,057	2,987	97	101	2,244	2,339	207	122	1
1858.													
Sitka													
Kadiak	169		442	3,120	1,364	17	76	42	1,002	2,880	208	73	4
Ounga	274		51		240								
Unalaska	418		7		1,102								
Atkha	32				223	228							
Attoo	249					94							
St. Paul Island		29,810				558							
St. George Island		3,000				1,555							
Kalmakovsky			95	1,280	128	8	7		352		95		
St. Michael			286	1,449	506	150	24		1,394	69	53		
Total	1,142	32,810	881	5,849	3,563	2,610	107	42	2,748	2,949	356	73	4
1859.													
Sitka				32			5	22		4			
Kadiak	491		557	3,178	1,420		81	41	675	1,197	94	56	1
Ounga	359		44		250								
Unalaska	443				1,005								
Atkha	106				195	125							
Attoo	279					5							
St. Paul Island		19,000				619							
St. George Island		3,000				1,296							
Kalmakovsky			103	1,717	757	63	10		346		52		
St. Michael			333	1,982	995	267	37		1,946	140	32	1	
Total	1,678	22,000	1,037	6,909	4,622	2,375	133	63	2,967	1,341	178	57	1
1860.													
Sitka			3	88	1		11	39	7	6			
Kadiak	396		421	5,413	1,988	12	26	20	527	1,184	36	68	
Ounga	357		63		305								
Unalaska	478		6		870								
Atkha	49				42	245							
Attoo	259					59							
St. Paul Island		18,590				625							
St. George Island		3,000				911							
Kalmakovsky			79	969	398	37	10		950		9		
St. Michael			313	1,950	895	54	46		1,536		23		
Total	1,539	21,590	885	8,420	4,499	1,943	93	59	3,020	1,190	73	68	

Summary of furs purchased by the Russian-American Company, etc.—Continued.

RECAPITULATION.

Year.	Sea otter.	Fur seal.	Land otter.	Beaver.	Fox.	Arctic fox.	Bear.	Mink.	Marten.	Muskrat.	Lynx.	Wolverine.	Wolf.
1842	806	10,172	1,478	8,522	5,527	2,545	304	741	240	3,578	150	46	11
1843	1,054	12,171	1,608	9,924	4,006	3,302	222	102	992	80	144	10	11
1844	926	12,680	1,214	9,051	3,356	3,021	76	98	625	6	35	67	9
1845	822	13,637	1,358	8,685	3,798	1,869	127	78	985	145	100	71	17
1846	1,216	15,070	934	10,676	2,788	3,866	89	160	1,868	.....	162	111	8
1847	990	17,703	824	9,458	3,444	2,549	85	101	1,636	152	311	66	2
1848	1,035	14,650	762	10,290	3,857	2,176	136	148	1,122	550	323	22	4
1849	1,186	21,452	1,054	8,937	3,900	1,851	74	129	1,516	146	418	77	4
1850	1,358	6,771	790	8,691	4,447	1,796	158	99	1,257	896	497	131	7
1851	1,043	6,564	561	9,239	3,437	1,918	101	174	429	1,165	185	99	....
1852	880	6,725	704	6,791	4,314	2,736	70	6	573	1,152	49	80	5
1853	1,021	12,085	626	12,072	3,175	2,595	80	121	354	1,714	20	74	6
1854	742	26,147	923	6,004	2,773	2,112	25	39	513	167	14	46	1
1855	1,346	8,585	847	9,405	2,683	1,159	173	198	1,492	1,285	50	144	6
1856	1,070	23,550	906	4,559	2,501	2,335	94	107	1,732	220	112	39	....
1857	1,186	21,082	943	7,245	3,057	2,987	97	101	2,244	2,339	207	122	1
1858	1,142	32,810	881	5,849	3,563	2,610	107	42	2,748	2,949	356	73	4
1859	1,678	22,000	1,037	6,905	4,622	2,375	133	63	2,967	1,341	178	57	1
1860	1,539	21,590	885	8,420	4,499	1,943	93	59	3,020	1,190	73	68	....
Total	21,030	311,394	18,345	160,727	69,747	45,735	2,244	2,566	26,313	19,075	3,384	1,403	97

A comparison of the total purchases according to the above table with the total shipments as exhibited for the corresponding period of time in Table I will reveal certain discrepancies that require explanation. For instance, the shipments of land-otter skins from 1842 to 1862 aggregated 170,473, while only 18,345 were purchased of the natives from 1842 to 1860. During this period the Hudson Bay Company rented from the Russian-American Company the strip of mainland lying back of the Alexander Archipelago, and, upon mutual agreement, the greater part of the rent was for many years paid in land-otter skins, purchased in various sections of the Hudson Bay Company's domains. These skins were then in great demand for the trimming of officers' coats in the Russian army; hence the large shipments in excess of what Russian America could supply.

Further comparison of the two tables demonstrates the fact that the skins of the marten (Alaskan sable) and of the bear were rarely exported under the Russian management, being disposed of chiefly to employees of the company, and in consequence of the limited demand these animals were not very extensively hunted.

A comparison of the quantity of furs purchased during the nineteen years included in the exhibit of the above table with the incomplete returns of shipments by American traders in thirteen years, from 1867 to 1880, the latter being necessarily below the real figures, is shown below:

Output of furs in Alaska.

Classes of fur.	From 1842 to 1860 (19 years).	From 1867 to 1880 (13 years).
Sea otter	21,030	52,491
Fur seal	311,394	1,277,333
Land otter	18,345	25,331
Beaver	160,727	58,258
Fox	69,747	149,559
Arctic fox	45,735	27,731
Bear	2,244	8,057
Mink	2,566	103,313
Marten	26,313	105,920
Muskrat	19,075	68,230
Lynx	3,384	.....
Wolverine	1,403	.....
Wolf	97	.....

A contemplation of the above table may furnish food for reflection to United States officials, and might probably be of interest to the Russian Government.

The prices paid to natives for their furs have, of course, greatly increased since the admission of unlimited competition to the field of operations. The subjoined comparative table of prices will present this:

Classes of fur.	Under Russian rule.	At present.
Sea otter	$10.00	$60.00 to $100.00
Land otter	.60	2.50 to 3.00
Black fox	$2.00 to 3.00	10.00 to 40.00
Cross fox	.60	2.50 to 3.00
Red fox	.60	1.00 to 1.50
Arctic fox (blue)	.80	3.00 to 4.00
Arctic fox (white)	.20	2.00
Beaver	.60	2.00 to 3.00
Mink	.05	.20
Marten (sable)	.10	3.00 to 4.00

Owing to competition the purchasing power of money has not decreased in Alaska in the same ratio as prices have increased. The natives in all accessible sections of the territory are now enabled to purchase necessaries and luxuries of which they did not dream previous to the abolition of the Russian monopoly. The fur seals of the Pribilof Islands were never purchased of the natives. The latter were paid only for the labor of killing and skinning the animal, as is now done by the present lessees of the islands under the terms of their lease from the United States Government.

The market value (London) of the annual yield of furs in western Alaska may be approximately stated as follows:

Classes of fur.	Number.	Price.	Value.
Sea otter	4,500	$100.00	$450,000
Fur seal	100,000	15.00	1,500,000
Land otter	2,500	3.00	7,500
Beaver	5,800	3.00	17,400
Black fox	920	30.00	27,600
Cross fox	2,560	3.00	7,680
Red fox	11,400	1.50	17,100
Arctic fox (blue)	1,190	4.00	4,760
Arctic fox (white)	1,580	3.00	4,740
Bear, black	100	5.00	500
Bear, brown	711	2.00	1,422
Mink	10,300	.30	3,090
Marten (sable)	10,500	3.50	36,750
Muskrat	6,800	.10	680
Lynx	870	3.00	2,610
Total			2,081,832

Adding to this $100,000 for the furs of southeastern Alaska, the greater part of which were sold in British Columbia, and the value of the annual fur yield of Alaska may be estimated at $2,181,832, which amount may be swelled a little by the Arctic fur trade, of which I have no returns.

This estimate, which is necessarily low, furnishes the best answer to the question whether the purchase of Alaska from Russia, considered from a financial standpoint, was a judicious measure.

THE FISHERIES.

Mr. Tarleton H. Bean, of the Smithsonian Institution, enumerates 75 species of food-fishes existing in Alaskan waters, over 60 of which Mr.

Bean claims to be strictly adapted to the use of man, while the remainder come under the heading only as bait for catching the others.

Of the sea fishes the codfish stands foremost in quantity as well as in commercial importance.

Within a short time after the purchase of Alaska by the United States Prof. George Davidson, of the United States Coast Survey, stated that the soundings of Bering Sea and of the Arctic Ocean north of Bering Strait indicated the largest submarine plateau yet known. In the eastern half of Bering Sea soundings of less than 50 fathoms are found over an extent of 18,000 square miles. The extent of the banks in the Gulf of Alaska, between longitude 130° and 170° and latitude 60° and 54°, has not thus far been estimated, but it is probably equal to that of the banks of Bering Sea.

In general terms it may be stated that the codfish is found around the whole south shore of Alaska. Its distribution on banks properly begins, however, with the Strait of Fuca, though it is found occasionally as far south as the Farrallones. A few schooners fish for cod in British Columbian waters, especially near the Alaskan line. The fish is quite abundant in many of the channels of the Alexander Archipelago, and is found in Yakutat Bay, off the southern and western shore of Kaiak Island, in Prince William Sound.

The first large bank after crossing the southern boundary of Alaska is found in Chatham Strait, but another and smaller bank lies in Peril Strait, between Baranof and Chichagof islands. The next bank of general importance is the Portlock Bank, located by the explorer of that name along the southeastern coast of Afognak and Kadiak islands. The soundings of this bank are from 45 to 90 fathoms. Some distance to the southeast of Kadiak, in latitude 56° 13′ and longitude 153° 30′, there is another bank, with soundings of from 22 to 28 fathoms.

More to the southward is found the Simeonof Bank, discovered in 1867, between latitude 54° 45′ and 54° 38′, longitude 158° and 158° 30′, with soundings averaging 40 fathoms, and about 20 miles east-northeast of Simeonof Island a little higher plateau is reported, with soundings of from 26 to 40 fathoms. The famous Shumagin Banks, of which the Simeonof Bank, perhaps, is an extension, are located around Nagai, Popof, and Ounga islands, within a short distance of the shore. Most of the shipments of codfish from Alaska to San Francisco are made from this vicinity, the banks heretofore named being worked almost exclusively for local consumption.

South of the Shumagins an extensive bank, with soundings averaging 35 fathoms, is known to exist in the vicinity of Sannak Island, between latitude 54° 67′ and 54° 20′, longitude 161° 55′ and 162° 30′, and another large bank is reported off Unimak Pass, in latitude 54°, longitude 166°, with soundings of 40 fathoms. Still farther to the southward, in the vicinity of Akutan Pass, a bank with soundings of 50 fathoms was reported in 1869.

A very prolific codfish bank exists inside of Captains Harbor, in Unalaska Island, with shallow soundings of from 10 to 20 fathoms. The westernmost codfish bank definitely located in the Aleutian chain of islands extends from the south end of Umnak Island into the North Pacific, with soundings of 30 fathoms, in latitude 52° 30′, longitude 168° 50′. Many more such banks exist in the vicinity of the Aleutian Islands and the eastern portion of Bering Sea, but these rich stores of food-fish will probably remain undisturbed for some time to come. Even the banks enumerated here are merely skimmed, as it were, of their abundant produce, the fishing being done chiefly "inshore," in dories, boats,

and canoes, the schooners engaged in the business being employed almost exclusively as carriers of the catch.

The codfishery of Alaska may be considered as in its infancy. Since Captain Turner, of the schooner *Porpoise*, sailed from San Francisco in the spring of 1866, and returned in the same year, after a brief visit to Queen Charlotte Islands, Ounga, and the Shumagin group, with a cargo of marketable codfish, the industry opened by this pioneer has not developed in such a degree as might have been expected from the almost unlimited supply and the favorable location of the banks.

As has already been stated, no deep-sea fishing, such as carried on in the North Atlantic, exists in Alaska. In the channels of the Alexander Archipelago the fishing for cod has until lately been confined altogether to the natives of the Thlinket tribes, who opposed all attempts of white men to compete with them in this particular industry. The few small sloops engaged in the business in this region depend altogether upon the inclination of these natives to exert themselves in obtaining their cargoes. These fishermen use their own appliances, fishing with bark lines and wooden iron-pointed hooks, and two men in a canoe feel satisfied with a catch of 30 or 40 fish, which they sell at a comparatively high rate to the captains of the sloops; and thus it happens that these crafts are frequently detained for many weeks awaiting a cargo that could easily have been secured within five or six days by white men.

In Prince William Sound the codfish is only caught by natives for their own consumption at a season when no other fish can be obtained in abundance. The fishing here is from canoes within a short distance of the shore, mostly in well-sheltered bays. Perhaps one-half of the catch is consumed fresh, while the other half is split and hung up to dry in the open air, without salting or smoking. In spite of the damp climate of this region the specimens of dried codfish that came under my observation were apparently well cured, quite palatable, and in a better condition than salmon or redfish treated in the same manner, the disagreeable taint which seems to be inseparable from dried fish of the salmon family being scarcely perceptible in these specimens of dried codfish. As the codfish of Prince William Sound is now confined almost entirely to its northern shore, it is safe to state that the total annual consumption, both fresh and dried, does not exceed 30,000 or 40,000 fish.

In English Bay, on the southwestern extremity of the Kenai Peninsula, the natives fish for cod occasionally, but only when unfavorable weather prevents them from hunting outside of the limits of the bay. The cod here is all consumed fresh, and the total catch can not exceed 2,000 or 3,000 fish.

Proceeding from here southward to the islands of Afognak and Kadiak, we meet a people partially subsisting upon codfish throughout the year. The Portlock Bank is within easy reach of all the settlements on the eastern shore of these islands, but only the most enterprising among the people, chiefly the creoles or half-castes, venture out to any distance in sloops built on the islands. The principal fishing is done close inshore in small boats and dories. The old men and the boys of the creole and Innuit families may be seen in their boats or canoes a mile or two from shore on almost any morning throughout the year, except when a furious northeaster keeps them at home. Nearly all this catch is intended for immediate consumption, as the inhabitants of this region do not dry any codfish. In the creole settlements of Afognak, Spruce Island, and in the vicinity of Kadiak, fresh codfish, together with potatoes grown in their little garden patches, form the constant

diet of the inhabitants throughout the year. In the harbor of St. Paul, the central settlement of this group of islands, the codfish is also prepared for exportation. The favorite ground for these fishermen is a flat with soundings from 15 to 20 fathoms, and here they average a daily catch of 200 fish per man. The shipments from this point to the California market have been thus far limited to small quantities of boneless fish put up in 30-pound boxes.

The only active codfish industry existing in Alaska is located about the Shumagin Islands, the firm of McCollam & Co., of San Francisco, having a permanent station at Pirate Cove, on Popof Island. The force of this establishment consists of a foreman and 8 fishermen, who go out in their dories during the day and dress their catch on shore in the evening. The fishermen who come up with the schooners from San Francisco generally ply their lines within easy reach of the harbors on Popof and Nagai islands. The average catch per man in this vicinity is also 200 fish, though catches of from 500 to 600 have been recorded.

Since the first opening of this industry on the Shumagin Banks the total annual catch has not exceeded 500,000 fish. The best results in dory fishing at Pirate Cove are obtained in the month of February. The schooner fishermen meet with good success from late in April until the middle of August, and the fishing on the deep banks of Simeonof Island is best in August and September. At the latter place it has been reported that 10 men caught 4,000 fish in one day, the average catch being from 1,600 to 1,800.

All the fishermen engaged in the vicinity of Kadiak and on the Shumagin Banks agree in the statement that the abundance of codfish is as great as ever, occasional fluctuations in the catch being due entirely to migration of the fish.

Careful investigations by Professor Jordan and Dr. T. H. Bean, of the United States Fish Commission, into the quality of the Shumagin cod have shown no essential difference between this species and that of the North Atlantic. The facilities for the pursuit of the industry are greater on the Pacific side than they are on the Atlantic. The journey from San Francisco or Puget Sound to the Shumagin Banks is comparatively brief and very safe, and the banks are within a few hours' run of numerous commodious harbors. In view of all these circumstances, the conclusion is unavoidable that the great want of the Shumagin fisheries is not fish or safety to the fishing craft, but simply a demand for fish, and that a market such as the New England fishermen enjoy would whiten the vast extent of the Shumagin Banks with sails of all descriptions. The yield of codfish, so far as it could be obtained from the records of shipments to San Francisco for the last few years, is given in the subjoined table. In connection with this subject it may be mentioned that fully one-half, if not more, of the codfish brought to San Francisco is caught in the sea of Okhotsk. The fish of the latter sea is not superior in quality, being caught early in the season and before reaching the best stage, and the quantity does not seem to exceed that caught on the Shumagin Banks, while the average weight is somewhat less. The question arises, Why do San Francisco fishermen go to the Okhotsk Sea at all?—a question which must be left for future investigators to solve.

The shipments of codfish from the Shumagin Islands to San Francisco in the year 1880 consisted of 7 cargoes, aggregating 432,000 fish and weighing 1,728,000 pounds. During the same year 725,000 fish were brought in 5 cargoes from the Okhotsk Sea, having been caught in Russian waters.

The codfishing of the North Pacific has been carried on for sixteen years, with the following results:

Year.	Vessels.	Fish.	Year.	Vessels.	Fish.
1865	7	469,400	1874	6	381,000
1866	18	724,000	1875	7	504,000
1867	19	943,400	1876	10	758,000
1868	10	608,000	1877	10	750,000
1869	19	1,032,000	1878	12	1,190,000
1870	21	1,265,500	1879	13	1,499,000
1871	11	772,000	1880	8	1,206,000
1872	5	300,000			
1873	7	550,000	Total		12,952,300

Of this, three-fifths, or 7,771,380 fish, came from the Okhotsk Sea, and the remainder, or 5,180,920, came from Alaskan waters.

Salmon shipments aggregated somewhat over 3,000 barrels salted and 8,000 cases canned.

A peculiarity of the Alaska codfishing industry is that the fish is not cured in the vicinity of the banks. The cod is only cleaned and pickled on board of the carrying craft, taken down to San Francisco, and there pickled anew, being finally taken out and dried in quantities to suit the demands of the market. Expert fishermen located on the Shumagin Islands and at Kadiak claim that the fish could be cured on the spot as well as it is done at Cape Ann and other Atlantic codfishing stations. It is difficult to understand the reason for the process adopted by these San Francisco firms. The repeated pickling certainly does not serve to enhance the quality of the Shumagin codfish, and it is probably owing to this fact that the Eastern codfish commands a higher price in the markets of the Pacific Coast.

Another deep-sea fish of importance in Alaskan waters is the halibut. It exists all along the coast from British Columbia northward and westward, and also in the deep harbors and straits of the Aleutian chain of islands. Among the natives of the Alexander Archipelago the halibut is a very important food staple, being obtainable throughout the year.

The Thlinket fishermen exhibit great patience and skill in catching this huge flat fish, which often attains a weight of several hundred pounds in these waters. It is consumed in immense quantities, both fresh and smoked, in all the villages and settlements inhabited by Thlinket tribes. Along the coast inhabited by Innuit tribes and about the Aleutian Islands the halibut does not exist in the same abundance, and the whole supply is consumed fresh.

The only attempt thus far made in Alaska to preserve halibut for exportation is reported from the Klawak fishing establishments, on Prince of Wales Island. It is doubtful whether anywhere in Alaska outside of the southeastern division a sufficient quantity of halibut exists to warrant fishermen in making a special business of their catch.

In order to furnish an adequate idea of the immense consumption of fish in Alaska it becomes necessary to discuss each division separately in this connection.

1. SOUTHEASTERN ALASKA.—This division has a population of over 7,000 inhabitants, all of whom depend more or less upon fish for subsistence. This population consists almost entirely of natives engaged in catching and curing various kinds of fish throughout nearly the whole year; and even during the hunting season, when fur-bearing animals are in their prime and all the able-bodied male adults are busy in their pursuit, the old men, women, and youths of both sexes remain

in the villages situated upon the seashore, fishing whenever the weather permits. Though the variety of fish is great in this region, halibut and salmon always form the basis of supply. In the Sitka market may be seen, in addition, at the various seasons several species of rockfish, trout, cod, and herring, while mussels and clams are also abundant. The halibut is here caught exclusively with bark lines, and hooks of peculiar construction. The hook consists of two pieces of wood fastened together at one end with strips of spruce root, so as to form an acute angle with each other, an arm of the angle being furnished with a bent pointed piece of iron. The wood is generally carved to represent some animal or fish, and the bait, usually herring, is tied on so as to cover not only the hook but also the wooden shaft on which the hook is fastened. The halibut will gulp down the bait, opening its jaws wider and wider, the short arm of the hook being constructed so as to leave only a narrow space between it and the iron point, thus admitting of the motion necessary to fasten the fish while preventing its escape. A halibut thus held with its mouth wide open will soon be drowned and can be easily secured. This Indian style of halibut hook seems to be more effective than that of civilization. Set lines, each provided with one hook, a stone sinker, and a buoy consisting of an inflated bladder or the stomach of a seal, with a small signal or flag attached to indicate when the fish is hooked, are in common use, and are generally set in 10 or 20 fathoms of water around the numerous islands of Sitka Bay.

In the open bay of Sitka salmon are caught occasionally by trolling and by spearing.

Herring are caught in immense quantities by impaling them on a sharp nail fastened to a long, thin strip of wood, and are consumed both fresh and dried, but the larger portion of the catch is converted into oil. The spawn of the herring, which is collected upon spruce boughs placed in shallow water for the purpose, furnishes a favorite article of food in a semiputrid state. The fish most commonly seen on the drying frames at Sitka village at all times of the year are halibut. They are cut in strips, dried partially in the open air, and then suspended in the smoke of the dwelling houses.

At the fishing station of Klawak, on Prince of Wales Island, halibut are caught with the same style of hook, and lines of kelp or bark. The principal bait used here is the cuttlefish, the fishing being done in from 10 to 20 fathoms of water. In fishing for the cannery at this place the Indians average 8 or 10 halibut to a canoe per day, with 2 persons, using not more than 3 or 4 hooks. The amount canned here per annum has not exceeded 200 or 300 cases of 2 dozen 2-pound cans each.

At Klawak, as well as at Old Sitka, salmon has been canned during the season, but the latter establishment has been abandoned. The Klawak cannery has had in its employ during the season as many as 160 Indians and 20 whites, among the former 30 being women and 5 or 6 boys. The shipments of canned salmon aggregated between 7,000 and 8,000 cases of 4 dozen 1-pound cans each. The once famous rédoute or deep-lake salmon fishery on Baranof Island, which at one time during the Russian rule supplied this whole region, and whence 2,000 barrels of salt salmon were shipped in 1868, now lies idle.

In order to arrive at the quantity of fish consumed by the people of this division it is necessary to take into consideration the fact that fully one-half or more than one-half of the catch is consumed in a dried state, very much reduced in bulk and weight. The waste in the drying process is so great that one person can easily eat at a single meal a fish that weighed 20 or 30 pounds when alive. It is therefore entirely within

the bounds of probability that each individual man, woman, or child consumes the equivalent of between 3,000 and 4,000 pounds of fresh fish per year. Among the Innuits of the west the proportion must be much larger, but in the southeastern division game of various kinds is still comparatively abundant. Thus, with a population of 7,000 in round numbers, we may calculate an annual consumption of 24,000,000 pounds of fish; or, striking an average of 5 pounds per fish, between large and small, halibut, salmon, codfish, and herring, nearly 5,000,000 fish of all kinds, in a section the inhabitants of which consume less fish than any other coast people in Alaska.

The eulachan (ulikon) or candle-fish, though consumed by the people of this division, is obtained chiefly in barter from the British Possessions, the catch in Alaska being confined to the Stakhin mouth and its immediate vicinity.

2. PRINCE WILLIAM SOUND.—The people of this section, numbering some 600 in all, inhabiting the coast from Mount St. Elias westward to the east coast of the Kenai Peninsula, though engaged in fishing to some extent at all times of the year, do not depend altogether upon this article of food for subsistence, and consequently the aggregate consumption, or rather destruction, of fish is less than in the southeastern division. Seal meat at all times of the year, and the flesh of mountain goats during the summer, together with that of bears, marmots, porcupines, and sea fowls, are consumed in perhaps equal proportions with fish. A limited number of codfish, halibut, herrings, and the various species of salmon comprise the catch of this region, two-thirds of which is probably eaten fresh and the remainder dried, no salt fish being prepared for home consumption or for export. An annual consumption of about 60,000 fish of all kinds (but chiefly salmon), representing an aggregate weight of 300,000 pounds, may be safely estimated for the Prince William Sound section of the coast.

3. COOKS INLET.—The shores of Cooks Inlet are inhabited by about 800 natives and a few families of creoles, who are engaged exclusively in fishing during the whole summer season, from May to September and October. During this time the fur-bearing animals are not in good condition, and consequently the whole population, down to the small boys, turn their attention to fishing. In addition to the native fishermen, white men are engaged in salting salmon at two points in the inlet, at the mouth of the Kenai or Kaknu River and that of the Kassilof.[1] The mode of capturing the salmon adopted by the natives for their own purposes is exceedingly primitive and unsatisfactory. The fish being too large to spear with safety, a frail staging of poles is erected at right angles with the river bank, extending into the stream. An Indian seats himself at the outward end of this frame, and, holding in the turbid water a large wicker basket with an aperture about 3 or 4 feet in diameter, waits patiently until a salmon enters the basket. But of course this mode of capture is impracticable where the water is clear, and even in the muddiest stream hundreds pass by where one enters.

The king salmon, or chavicha, frequent the streams of the inlet between May 20 and August 20. They are most abundant during the summer neap tide, but in numbers their proportion to the other and less valuable salmon species is as one to three. This disparity in quantity, however, is equalized somewhat by bulk and quality. The maximum length of the chavicha reported since 1870 was 6 feet, and the maximum weight 97 pounds, the average length being about 4 feet and

[1] Last year a cannery on the Kassilof River put up 6,000 cases of 2 dozen cans each.

the average weight 50 pounds. They appear regularly on the 20th of May, running in pairs and not in schools, and hugging the shore. They at all times refuse to take the hook, and prey upon the candle-fish and stickleback, not, however, consuming very many. They are caught by the whites in weirs and nets, the latter being 12 feet deep by 120 feet in length, with about 8 and 8½ inch mesh. The weirs, consisting of poles and a wickerwork of roots and bark, are erected on the mud flats of the river at low tide.

After the king salmon, two other varieties, the silver (kisuch) and the red salmon, make their appearance in immense numbers. The mode of capturing the salmon adopted by the white fisherman is essentially the same on the Kenai and the Kassilof rivers. The number of king salmon captured at the latter place during 1880 was 8,000, weighing 320,000 pounds, while the red and the silver salmon numbered 18,500, of an average weight of 10 pounds each, or 185,000 pounds. At Kenai the number of king salmon secured was 7,500, weighing about 300,000 pounds.

The native population of Cooks Inlet comprises 168 families (averaging about 4 individuals each). Each of these families prepares at least 750 pounds of dried salmon for winter provision, which would give an aggregate amount of 126,000 pounds of dried salmon put up on the inlet, representing over a million pounds of fresh fish. The creole families distributed over the various settlements number 44; these put up about 6 barrels of salt salmon each, or 264 barrels, weighing 52,800 pounds. Of dried fish these creoles put up 400 pounds to each family, or an aggregate of 17,600 pounds, representing 176,000 pounds of fresh fish. Thus we arrive at the astonishing aggregate of 2,760,000 pounds of fish as the annual consumption by natives and fishermen on Cook Inlet. It must be borne in mind, however, that by far the greater portion of this immense bulk is wasted in the process of drying.

In former times the natives of the lower part of Cooks Inlet engaged largely in the capture of beluga or white grampus, deriving from these monsters the greater part of their subsistence. The belugas seem to be plentiful in the turbid waters of the inlet, and schools of them enter some of the rivers as far as the limits of tide water, but the practice of hunting them seems to be dying out among the present generation, which finds easier modes of procuring subsistence, and the killing of the beluga is now a rare occurrence.

Large schools of the eulachan, or candle-fish, frequent the larger rivers of the inlet and are highly prized as food, but their presence in the rivers is exceedingly brief, and the catch can scarcely be considered as an item in the domestic economy of this region.

4. THE KADIAK DISTRICT.—The piscatorial wealth of this district has already been referred to in regard to codfishery, but at the present time the salmon catch is of greater importance both for home consumption and for export. The consumption of dried salmon within the district by 159 families of creoles and 255 families of natives amounts to 310,500 pounds, representing 3,105,000 pounds of fresh fish. The creole families put up in addition nearly 1,000 barrels of salt salmon, weighing approximately 200,000 pounds. The consumption of fresh salmon, as such, may be estimated at one-half of that of codfish throughout the year.

In addition to this immense catch of salmon for home consumption there are on the Karluk River, emptying into Shelikhof Strait, on the west coast of Kadiak Island, two fishing establishments of considerable magnitude; between 1,600 and 1,800 barrels of salted salmon being

secured here by the two firms during the season of 1880.[1] Several h dred of these barrels were filled with bellies only, a process that requi the killing of 37,500 fish in order to fill 125 barrels. Three hund thousand pounds of salmon were converted into "yukala" at this s tion in 1880, yielding 17,500 pounds of dried fish, and it is safe to p sume that at the present time three or four times this quantity is sal at Karluk and shipped to San Francisco. The run of salmon in Karluk River at the height of the season is so great as to interf seriously with the movement of canoes in crossing the stream, and fr 10,000 to 20,000 barrels could be filled here easily during the seas The fishing is done entirely with seines from 20 to 25 fathoms in leng 3 fathoms in depth, with a mesh of 3½ inches. The average weight the salmon secured at Karluk is 10 pounds. The whole native popu tion is employed in these fisheries during the summer, turning th attention to hunting only during the winter.

Among the creoles of the Kadiak district and the more prosperou the native families the use of the bidarka or kaiak has been to a gr extent superseded by small craft—sloops and plungers, mostly built order by the skillful carpenters of the creole settlements of Afogn and Yelovoi. A few fishing schooners ranging from 15 to 20 tons b den have also been constructed at Kadiak and Wood Island, but th are employed in fishing comparatively a small portion of the time, be chartered by traders during the hunting season.

The salmon of Karluk is perhaps a little inferior in quality to tha Cook Inlet, but, being possessed of flesh of a deep red color, it me with ready sale.

5. THE BELKOVSKY DISTRICT.—This district includes the Shuma Islands, which have already been discussed in connection with the c fishery. Throughout this section salmon is caught only for home c sumption, for which purpose there seems to be an abundant supp but with codfish near at hand in the immediate vicinity of every set ment it is not looked upon as being of great importance. The inhal ants of this district are nearly all successful sea-otter hunters, who able to purchase large quantities of imported provisions, and con quently the consumption of fish is much less than in some other tricts. A calculation could not be made upon the same basis here a the Kadiak or Kenai districts, but the 167 families inhabiting the set ments of Belkovsky parish consume perhaps from 150,000 to 200, pounds of salmon annually, fresh and dried, and an equal quantity codfish.

6. THE UNALASKA OR ALEUTIAN DISTRICT.—The inhabitants Unalaska district engage chiefly in the pursuit of the sea otter, fishing is limited by the demand for home consumption. The fis here are nearly the same as those of the Kadiak and the Belkov districts, with the exception of the greenfish or rock-cod, which plentiful in the deep bays of the Aleutian chain of islands; flatfish halibuts, and flounders are very abundant, and are taken in large qu tities with spears; the halibut, however, is not as large as that fou in other districts of Alaska. As has already been remarked, cod also frequent the harbors and a few banks in Bering Sea, and the stri fish, yellow fish, or Atkha mackerel exists here in immense numb This fish (described by Pallas as *Labrax monopterygius*, but known present as *Pleurogrammus monopterygius*) is found about the whol the Aleutian chain, and also among the Shumagin islands, congregat

[1] Last year one firm shipped from the same place 5,000 cases of canned salmon 2,100 barrels of 200 pounds each of salt salmon.

in large schools. At Attoo it is known as the kelpfish, on the Shumagins as the yellow or striped fish, and from Unalaska to Atkha as the Atkha mackerel. The last name appears very appropriate, from the fact that when salted and preserved just as mackerel are treated, it has the same taste as the latter. There can be no doubt that if this striped fish were properly introduced into the markets it would meet with ready sale, as it is certainly an excellent food-fish either salted or fresh. Traders at Nazan Bay, Atkha Island, report that 500 to 600 barrels could easily be put up by them in that bay alone. The latest price of this salt fish reported from San Francisco was only $10 a barrel, but it is safe to presume that the same fish put up in a marketable shape in kits would command a better price.

Three or four species of trout and many varieties of salmon frequent the bays and larger streams of this district, existing everywhere in sufficient quantity to supply the inhabitants with winter stores of dried fish or yukala. Captains Harbor, on Unalaska Island, is frequented at certain seasons by immense schools of herrings of a large variety, and exceedingly fat. Occasional shipments in small lots to San Francisco meet with ready sale in that market, especially for pickling.

Here, as in the Belkovsky district, the comparative wealth resulting from the sea-otter trade has caused the natives to neglect their natural food supplies, such as fish and game, and to purchase imported provisions; consequently the consumption of fish is proportionately much smaller than in less favored districts; but at a rough estimate the annual destruction of fresh fish by the inhabitants of the Unalaska or Aleutian district, numbering some 1,400, may be put down at 700,000 pounds.

7. THE BRISTOL BAY DISTRICT.—This district comprises the coast of Bering Sea, between Krenitzin Strait and Cape Newenham, with the rivers Oogashik, Igagik, Naknek, Kvichak, Nushegak, Igushek, and Togiak, and their tributaries. The natives of this region, numbering about 4,000, derive a very large proportion of their subsistence from the various kinds of salmon, which frequent the rivers in the greatest abundance. Exports from this section have thus far been limited to from 800 to 1,200 barrels of salted salmon per annum from the Nushegak River.

The inhabitants of a few settlements on the north coast of the Aliaska Peninsula and about Bristol Bay engage occasionally in the pursuit of the whale and walrus, gaining thereby a very considerable addition to their food supply, but the consumption of salmon is not thereby perceptibly lessened.

The annual "run" of the salmon family in the rivers of this district begins in the last half of May and continues until the beginning of September. The inferior species of red fish and "gorbusha" are caught until late in October, and even in November, while the various kinds of salmon trout and white fish exist under the ice of streams and lakes throughout the winter. By the middle of September the banks of lakes and rivers, whose waters begin to fall with the first frosts in the mountains, are covered with rows and heaps of dead silver and king salmon 2 and 3 feet in height, representing the number of these fish that died from exhaustion and bruises received in struggling with the fierce current, the rocks, and snags in their annual journey of reproduction. The description of one river at this period may serve as a type for all. In the month of September, 1880, I struck the Igushek River where it springs from a beautiful lake surrounded by mountains of considerable height. The gravelly beach of the lakes and every bar and shoal of

the river was lined with the decayed and putrefying bodies of the fish, which lay in windrows, as it were, from 1 to 2 feet deep, while every overhanging bough and projecting rock was festooned with the rotten bodies. At night a space had to be cleared of this disgusting mass to pitch our tent upon, and the abominable stench affected us to such a degree that, though entirely without provisions, we did not feel the pangs of hunger there.

There can be no doubt that here, as well as in the districts already discussed, a more economical method of preserving the fish would permit of the exportation of large quantities, though the salmon caught annually to feed these 4,000 people can not be estimated at less than 2,000,000 pounds.

8. THE KUSKOKVIM DISTRICT.—We now turn our attention to another district drained by a great river and somewhat densely inhabited by an almost purely ichthyophagous population. Salmon in three or four varieties throng the channel and sloughs of the Kuskokvim from May to October; trout and whitefish of various kinds are trapped under the ice throughout the winter, while the backwaters of the tundra, the lakes, and ponds are full of pike and a very toothsome and nutritious small blackfish peculiar to this region and the Yukon delta, which has been named, in honor of Mr. William H. Dall, *Dallia pectoralis*. The fish is so abundant that only old men, boys, and women engage in the catch, while the men hunt reindeer and moose and pursue the "maklak" (a large seal) for the sake of its luscious blubber. In the estuary of the Kuskokvim and the wide-mouthed tide creeks of the low delta land the beluga, or white grampus, is still quite plentiful, and furnishes ample stores of blubber and oil, a large proportion of which finds its way to the people living above tide water, who can only obtain by purchase the oil in which to dip their dried salmon.

The consumption of salmon in this district, thickly populated as it is within 100 miles of the coast, is exceedingly great, for here not only human beings but dogs also must be fed. The ratio accepted for the other districts of 500 pounds of dried fish for each individual must be increased here by at least one-fifth, representing 6,000 pounds of fresh fish destroyed for the maintenance of one individual and his proportionate share of the family dogs.

Throughout the winter, when snow lies deep through forest and tundra and hunting is made impossible, the native of the valley of the Kuskokvim depends entirely upon the supply of whitefish (*Coregonus*) in the main river and its tributaries, and every village has its traps set over eddies and shoals as soon as the ice is firmly established. The traps are of nearly the same construction as those used in the summer, but of somewhat smaller dimensions, as they are not intended for the reception of the huge king salmon or the full-grown "nalima." Every morning at dawn, or between 8 or 9 o'clock, the men of the village can be seen making their way to the traps, armed with ice picks curiously fashioned from walrus tusks or reindeer antlers, for each succeeding night a new, solid, ice covering forms over the trap which must be removed to get at the fish. Sometimes after an extraordinarily cold night it happens that the whole wicker basket of the trap, including its contents, is frozen solid, an accident involving considerable labor, as the trap must then be taken to pieces and built anew. In spite of all such difficulties the supply of whitefish is generally sufficient for the maintenance of the Kuskokvim people during the winter, with the help of the scanty stores of dried salmon, preserved during the summer, and the hares and ptarmigans trapped by the boys.

In the lakes, the feeders of all the tributaries of the Kuskokvim, the salmon trout is quite plentiful throughout the winter, and is secured by the natives with hooks and lines or dip nets through openings in the ice. Were it not for this unfailing supply of whitefish and trout it would be impossible for these improvident savages to live through the winter. This remark refers only to the inhabitants of the upper river. On the lower river, within the influence of the tremendous tidal action described elsewhere, the river does not sustain a solid covering of ice, and seals are hunted throughout the winter, furnishing ample supplies of luscious oil and blubber; and even the beluga comes up the gulf-like estuary in schools, puffing and snorting like a fleet of tugboats, between the masses of ice floating up and down with the changing tide.

The oil obtained from the beluga and the large seal (maklak) is a very important article of trade between the lowland people and those of the mountains, the latter depending upon it entirely for lighting their semi-subterranean dwellings during the winter and to supplement their scanty stores of food. The oil is manufactured by a very simple process. Huge driftlogs are fashioned into troughs, much in the same manner as the Thlinket tribes make their wooden canoes. Into these troughs filled with water the blubber is thrown in lumps of from 2 to 5 pounds in weight; then a large number of smooth cobblestones are thrown into a fire until they are thoroughly heated, when they are picked up with sticks fashioned for the purpose and deposited in the water, which boils up at once. After a few minutes these stones must be removed and replaced by fresh ones, this laborious process being continued until the oil has been boiled out of the blubber and floats on the surface, when it is removed with flat pieces of bone or roughly fashioned ladles and decanted into bladders or whole seal skins.

The densely populated delta between the mouths of the Kuskokvim and Yukon rivers, with its great network of channels, sloughs, rivers, and lakes, offers to its inhabitants scarcely any article of food but such as is drawn from the water, the beluga and the seal furnishing the meat and oil so necessary to sustain life in high latitudes, while the salmon and whitefish abound here as they do on the larger rivers; and in addition to these is found the small blackfish named *Dallia pectoralis*. This fish, not exceeding 5 or 6 inches in length, and scarcely known to the scientific world until a few years ago, is of the greatest importance for the inhabitants of this delta. It is found in all the shallower channels and lagoons throughout the country in such quantities as to furnish subsistence for whole settlements in the most desolate regions, where nothing else could be found to sustain life at certain seasons of the year. The blackfish, as it is called by the natives, is exceedingly fat, and a good quality of pellucid oil is obtained from it by the process described above. Its presence is of the greatest advantage to the civilized traveler who may happen to traverse this almost unknown region, as it represents the only palatable article of food to be found there during the winter; and without it he would be obliged to subsist upon dried fish, blubber, and oil in various stages of decomposition. The people inhabiting the region where the blackfish is found are in better condition physically when spring approaches than any of their neighbors in regions where it does not exist, being almost exempt from the annual period of starvation elsewhere preceding the beginning of the salmon run in the rivers. The 3,000 or 4,000 people inhabiting the delta must be looked upon as fish eaters only, and the consumption of fish by them in the course of the year must be correspondingly great.

9. THE YUKON RIVER DISTRICT.—It is next to impossible to form an adequate estimate of the consumption of fish on a river of the magnitude of the Yukon from the point where it enters Alaska on the British Columbian boundary until it reaches Bering Sea. We know that the run of the various species of salmon is very large, though not extended over a long period, and also that a large proportion of the catch is preserved by the wasteful process of drying only, which reduces a fish weighing as it comes out of the water from 60 to 100 pounds to a flat and shriveled object of from 5 to 10 pounds. The loss on all classes of fish is in a like proportion, and consequently the quantity required or the sustenance of a single individual throughout the seven or eight months of winter must be very great.

As far as the Eskimo race has extended its settlements on the banks of the river, to a distance of from 200 to 300 miles from the sea, the fish traps already described lie on both banks; but as this mode of fishing affects only such fish as ascend the stream along the banks and eddies, the number of salmon which complete their journey of reproduction without meeting any obstacles must exceed by far the number secured by the natives. In view of the immense width and depth of the river, it seems very doubtful whether any of this immense mass of fish could be secured by fishermen, even were they provided with all the appliances now in use on the Columbia River in Oregon and the Sacramento in California.

The Athabaskan tribes inhabiting the upper Yukon region do not, as a rule, make use of traps. The game is still plentiful in their country, and they resort to fishing only with hooks and lines, chiefly in the smaller streams and lakes. For the purpose of securing a small stock of fish for traveling stores and dog feed, whole families descend the river in the summer and camp at some favorable spot for a month or two, while others obtain the same supplies in exchange for furs from the natives of the lower river. In addition to man and his dogs we find here another factor in the consumption of fish in the bear (*Ursus richardsonii*), who is an expert fisher and consumes immense quantities both of salmon and whitefish. He is accustomed to select a projecting point on the sloping bank of a river, where he stretches himself close to the water's edge and watches the surface of the turbid stream. The ripple caused by the passage of a large fish informs him of the proper time to make a sweep with his huge paw, the claws projecting like so many hooks, and he seldom fails to bring forth one or more fish at a time. These he carries away to some distance from the river bank, where he lies down and strips the bones of all the flesh as neatly as if he intended to preserve the complete skeleton as a specimen. The bones of salmon and whitefish are frequently found at a distance of a mile or two from the streams, where the fish have been carried by bears to feed their young. These animals are plentiful throughout the Yukon region, and subsist upon no other food from the time the salmon begins to run until the berries are ripe, late in August, when the shaggy fish eaters become strict vegetarians.

For the Yukon River district the annual destruction of fish for the maintenance of each individual can not be calculated at less than 6,000 pounds.

10. THE ARCTIC DISTRICT.—Of the consumption of fish along the Arctic Coast of Alaska to the northward of Bering Strait no reliable data are accessible. The people subsist to a greater extent upon seals, walruses, and the meat of whales. The run of salmon in the few larger rivers watering this region is necessarily short, and the fish is much

smaller than we find it to the southward. The natives, however, manage to put up during the brief summer a small supply of dried salmon and whitefish. "Fakhnia," a species of tomcod, is caught during the summer along the lower Arctic Coast, and salmon trout ascend the larger streams. Codfish have been caught at a few points along the Arctic Coast, but no banks have been located. Of late years, since whaling has been pursued more actively by means of steam vessels and improved appliances, the Eskimo living upon the coast have lived so largely upon the offal left to them by whalers after cutting up the huge cetaceans that they have been enabled to neglect fishing to a great extent; but unfortunately these same whalers, who temporarily increased one source of subsistence, destroyed by thousands an animal furnishing the staple food of these regions—the walrus—which is rapidly being exterminated for the sake of its ivory. The animals are shot with rifles from ships and boats, and out of 10 animals killed but 2 or 3 are secured, while 7 or 8 sink and are lost. This wasteful practice is a question of life or death with the poor Eskimo. At points most exposed to such depredations, like St. Lawrence Island, in Bering Sea, two-thirds of the people have already perished by starvation. The evil is increased by the effects of spirituous liquors freely distributed among these natives by whalers and illicit traders, causing the latter to neglect, during periods of wild intoxication, the laying up of stores for winter.

The whaling industry of the north Pacific is now carried on chiefly on the American side of the Arctic, beyond Bering Strait, with the exception of some coast whaling on the California Coast and in the channels and passages of Alexander Archipelago. The vessels engaged in the business on the Alaskan Coast in 1880 were 36 sailing craft and 4 steamers. Their catch consisted of 35,000 pounds of whalebone, 15,000 pounds of ivory, and 21,000 barrels of oil. The value of the bone alone was $850,000; that of the oil, $280,000, while the ivory brought $9,000, making a total of $1,139,000, or an average of $28,475 per vessel—certainly a remarkable showing of the profits accruing from this industry. The 15,000 pounds of ivory represent at least 3,000 walruses, the average weight of a pair of tusks being 5 pounds. The 3,000 walruses whose tusks were secured would indicate that at least 10,000 were killed, seven-tenths of which were lost. In view of such wanton destruction it is easy to foresee the extermination, at no distant date, of the people who depend upon the walrus for subsistence.

The common hair seal and the sea lion have decreased in numbers to such an extent along the whole coast line of Alaska that their pursuit no longer occupies a place among the industries of the country, and they supply a wholly local demand. The sea lion has almost disappeared from the vicinity of the sea-otter hunting grounds, compelling the trading firms to import such skins from the coast of Lower California and Mexico in order to furnish their hunters with the material for making their canoes. Sea-lion meat was once a staple article of food with the Aleutian people and among all the Eskimo tribes, but at present it is looked upon as a delicacy not easily obtained.

The supply of fish of various kinds in Alaska is practically inexhaustible, but the stores lavished upon the natives of that country by bountiful nature could not be more wastefully used than they are now. Any development in the fishing industry must necessarily be an improvement, causing a saving in the supply.

The proportion of Alaskan fish brought into the markets of the civilized world, when compared with the consumption of the same

articles by the natives, is so very small that it barely deserves the name of an industry of the country. The business, however, shows a decided tendency to increase in magnitude, and within the last few years the shipments of salted salmon in barrels from the Kadiak-Aleutian divisions have been steadily increasing, until they now amount to between 4,000 and 5,000 barrels per annum. These sell readily at $9 per barrel in San Francisco, leaving a handsome profit to the men who have invested capital in the enterprise. The number of cases of canned salmon shipped during the last year was between 8,000 and 9,000, each case containing 2 dozen 2-pound cans. Codfish shipments from the Shumagin Islands and Bering Sea amount to nearly 600,000 fish of the average weight, when cured, of from 3 to 5 pounds each, bringing from 6 to 7 cents per pound. But few men with a small amount of capital are engaged in this industry in Alaska in the present unsettled condition of the country.

THE TIMBER OF ALASKA.

The claims of Alaska to the possession of vast tracts of valuable timber have been both exaggerated and disputed.

At the beginning of this chapter we sketched the distribution of forests throughout the whole country. In detail we find that the timber of Alaska consists of evergreen trees principally, the spruce family preponderating to an overwhelming extent. These trees grow to their greatest size in the Sitka or Alexander Archipelago. An interval occurs from Cross Sound until we pass over the fair-weather ground at the foot of Mount St. Elias, upon the region of Prince William Sound and Cooks Inlet, where this timber again occurs and attains very respectable proportions in many sections of the district, notably at Wood Island and portions of Afognak, and at the head of the Kenai Peninsula and the two gulfs that environ it. The abundance of this timber and the extensive area clothed by it are readily appreciated by looking at the map, and are rendered still more impressive when we call attention to the fact that the timber extends in good size as far north as the Yukon Valley, clothing all the hills within that extensive region and to the north of Cooks Inlet and Kenai Peninsula, so that the amount of timber found herein is great in the aggregate. The size of this spruce timber at its base will be typified in trees on Prince of Wales Island 50 feet and over in height, with a diameter of at least 3 feet. They have not grown as fast as they would have grown in a more congenial latitude to the south, such as Puget Sound or Oregon; hence when they are run through the sawmill the frequent and close proximity of knots mars the quality and depresses the sale of the lumber. Spruce boards are not adapted to nice finishing work in building or in cabinet ware, or, indeed, in anything that requires a finish and upon which paint and varnish may be permanently applied, for under the influence of slight degrees of heat it sweats, exuding minute globules of gum or rosin, which are sticky and difficult to remove.

The other timber trees in southeastern Alaska, Kadiak, and Cooks Inlet may be called exceptional. But one very valuable species of yellow cedar (*Cupressus nutkaensis*) is found scattered here and there within the Alexander Archipelago and on the 30-mile strip. Here this really valuable tree is found at wide intervals in small clumps, principally along shoal water courses and fiords, attaining a much greater size than the spruce, as frequently trees are found 100 feet high, with a diameter of 5 and 6 feet. The lumber made from these is exceedingly valuable, of

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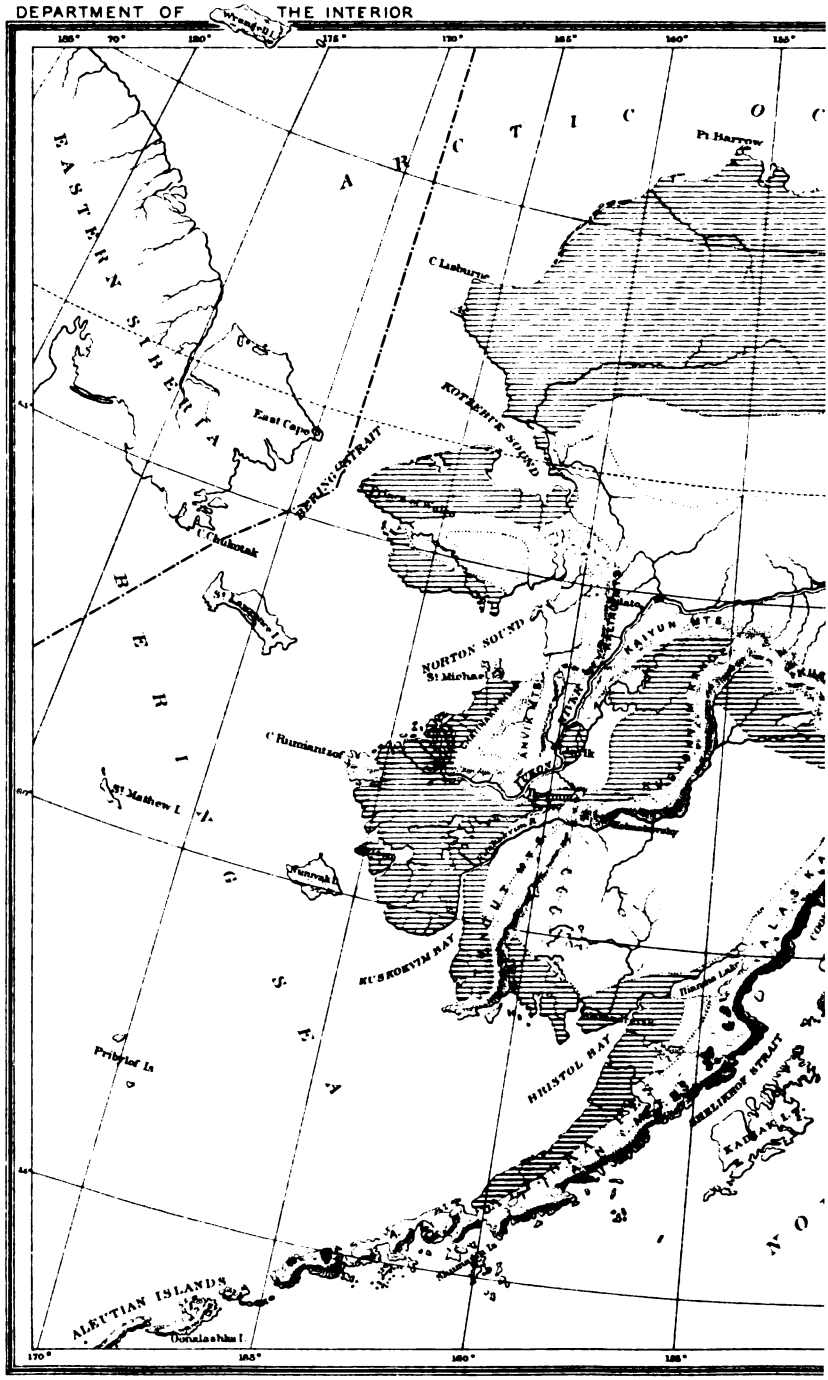
DEPARTMENT OF THE INTERIOR



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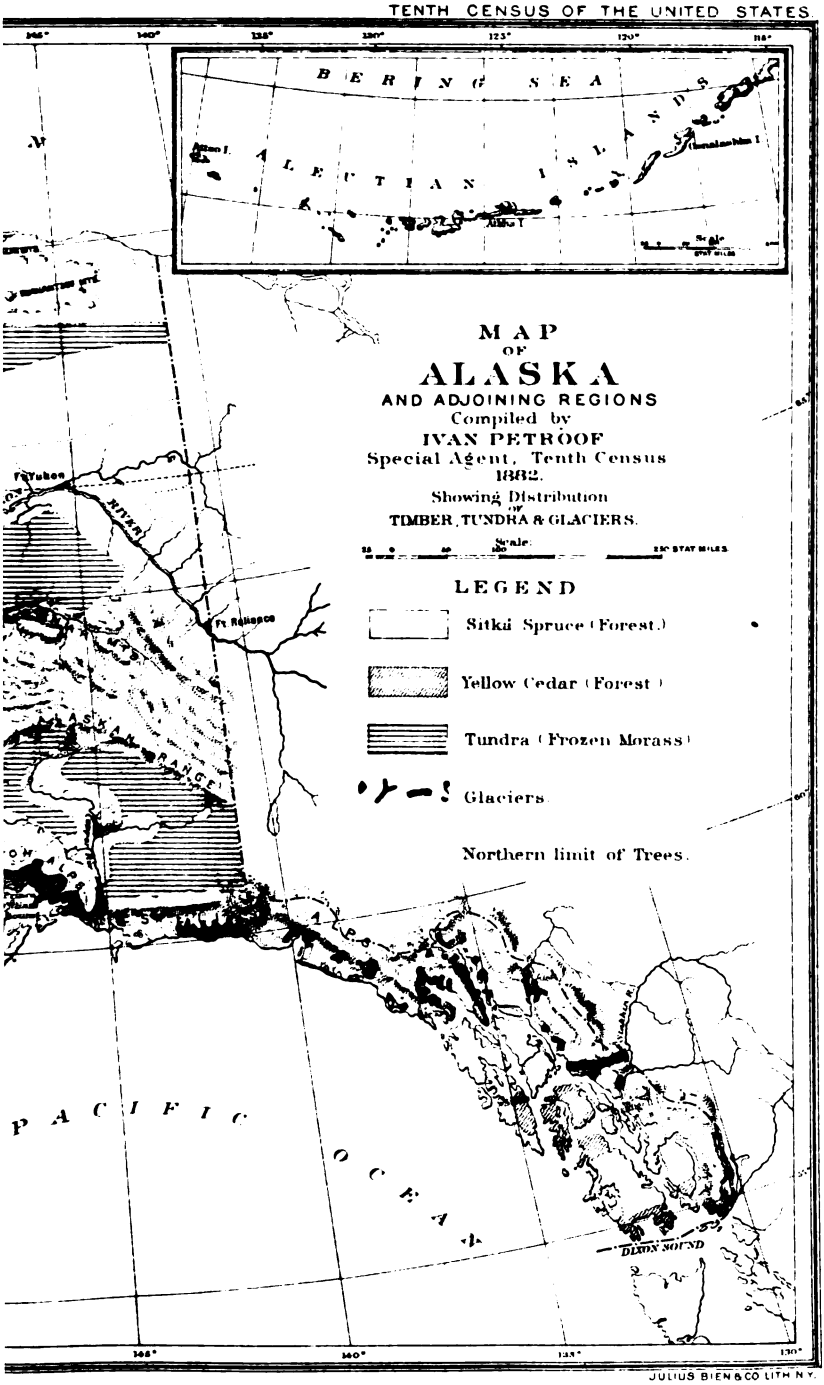

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the very finest texture, odor, and endurance, and is highly prized by the cabinet-maker and the shipbuilder.

While, therefore, we find a very large supply of timber in Alaska such as we have described, yet it is instantly apparent that as long as the immense forests of Oregon, Washington Territory, and southern British Columbia stand as they exist to-day there will be practically no market for Alaskan lumber.

The accompanying map indicates, as far as it has been ascertained, the distribution of the yellow cedar (*C. nutkaensis*) and the Sitka spruce (*Abies sitchensis*) and also the northern and western limits of the water tree. The white birch is found throughout the region which supports the spruce—scattered or in small bodies—chiefly along the water courses. The alder and willow are found on all the lowlands, reaching far beyond the northern and western limit of the spruce. A poplar, resembling our cottonwood, attaining great size under favorable circumstances, is also found in nearly all the timbered sections of Alaska south of the Arctic Circle.

To the westward of the one hundred and forty-first meridian no timber grows at an altitude higher than 1,000 feet above the level of the sea, and consequently the forests are confined entirely to valleys and plains, all mountains being bare throughout the section indicated. On Kadiak Island and on the Aliaska Peninsula the change from a vigorous growth of spruce timber to bare hills and grassy plains is very abrupt, and is apparently unexplained by any corresponding change in soil, temperature, or general climatic conditions. A slightly curved line, beginning at the intersection of the coast hills of the east shore of Norton Sound with the Oonalakleet River, passing across the Yukon and the Kuskokvim rivers, the mouth of the Nushegak, across the Aliaska Peninsula, and impinging upon the north Pacific in the vicinity of Orlova Bay, on Kadiak Island, will serve as the western limit of spruce forest in Alaska.

With reference to quality the Alaska forest trees may be divided as follows:

1. YELLOW CEDAR (*Cupressus nutkaensis*).—This is one of the most valuable woods on the Pacific Coast, combining a fine, close texture with great hardness, durability, and a peculiar but pleasant odor. The Russians named it "dushnik" (scented wood) on account of the last-named quality. In the immediate vicinity of Sitka, on Baranof and adjoining islands, this tree was nearly exterminated by the Russians, but on the Kehk Archipelago (Koo Island) and on Prince of Wales Island and a few others of the Alexander Archipelago, near the British Columbian frontier, considerable bodies of it can still be found, and beyond the line, in the Nass and Skeena River valleys, it is also abundant.

2. SITKA SPRUCE (*Abies sitchensis*).—This is the universal forest tree of Alaska, and is found of gigantic size on the islands of the Alexander Archipelago and on the shores of Prince William Sound. Its medium growth it appears to attain in the valleys of the Yukon and the Kuskokvim, while on the east side of Cooks Inlet and on the more northern uplands it is quite stunted and dwarfed. The Sitka spruce is most closely connected with the various requirements of all Alaskan natives in their domestic economy, as its timber is used in the construction of nearly every dwelling throughout the country, and even those tribes who inhabit barren coasts far removed from the limits of coniferous trees are supplied with it through means of freshets and ocean currents. The sappy outer portion of the wood furnishes splin-

ters and torches that light up during long months of winter the dark dwellings of interior tribes of Tinneh stock, who know not the oil lamp of their Innuit neighbors. The same material is also used for sledge runners on loose but crisp frozen snow, over which iron or steel would drag with difficulty, as over deep, coarse sand. The Thlinket and the Hyda fashion their buoyant and graceful canoes, both large and small, from spruce logs, and split from them also the huge planks used in the construction of their houses. The lumber manufactured from the Sitka spruce is much less durable than the yellow cedar, very knotty, and consequently not adapted for shipbuilding.

3. HEMLOCK (*Abies mertensiana*).—Though this tree generally exceeds the spruce in size, it is of rare occurrence, much less valuable as timber, but well adapted for fuel.

4. BALSAM FIR (*Abies canadensis*).—This tree is found only in small, scattered bodies, and is of little value as timber, but the natives use its bark for tanning and for other purposes.

5. SCRUB PINE (*Pinus contorta*).—The scrub pine is found throughout the interior of Alaska in small, scattered bodies up to the highest latitudes, but it is of no value as timber.

Thus it will be seen that the forests of Alaska are altogether coniferous, as the small bodies of birch and the alder and willow thickets on the lower Yukon and Kuskokvim rivers can scarcely be considered to come under this head. Aside from the yellow cedar, which is rare, the timber wealth of Alaska consists of the Sitka spruce, which is not only abundant and large (trees of from 3 to 4 feet in diameter being quite common in southeastern Alaska and Prince William Sound), but also generally accessible.

To give even an approximate estimate of the area of timbered lands in Alaska is at present impossible, in view of our incomplete knowledge of the extent of mountain ranges, which, though falling within the timber limits, must be deducted from the superficial area of forest covering.

A few small sawmills of exceedingly limited capacity have been erected at various points in southeastern Alaska to supply the local demand of trading posts and mining camps, but finished building lumber is still largely imported even into this heavily timbered region. In all western Alaska but one small sawmill is known to exist, which is on Wood Island, St. Paul Harbor, Kadiak. This mill was first set up to supply sawdust for packing ice, but since the collapse of that industry its operations have been spasmodic and not worth mentioning. Lumber from Puget Sound and British Columbian mills is shipped to nearly all ports in western Alaska for the use of whites and half-breeds, while the natives in their more remote settlements obtain planks and boards by the very laborious process of splitting logs with iron or ivory wedges. On the treeless isles of the Shumagin and Aleutian groups, as well as in the southern settlements of the Aliaska Peninsula, even firewood is imported from more favored sections of the Territory and commands high prices.

The driftwood washed upon the shores of Bering Sea and the Arctic is of very little value as building material and cannot be worked into lumber.

On the map I have also endeavored to show approximately the extent of the tundra, or marshy plains, producing a vigorous growth of mosses, grasses, and even flowers, but resting upon a substratum of frozen soil and ice, which does not thaw during the brief summers. The glaciers also have been indicated where they are definitely known to exist, but others could doubtless be found in mountain regions not yet visited.

MINERALS.

Coal is found, chiefly or wholly of a lignite composition, at a great many points throughout the southern and western coasts of Alaska and the islands thereof; and during the past season a vein was opened in the Arctic, above Cape Lisburne, by Captain Hooper, of the revenue marine, who says that he mined it easily and used it with great satisfaction in making steam for his vessel. The oldest coal mine in the country is that on Cooks Inlet, near its mouth, at a place still called on the map Coal Harbor. The Russians also took notice of coal at Unga, on the Shumagin Islands, and several openings were made by them of veins here and there in the Alexander Archipelago. Following the Russians, our people discovered and attempted to work one or two in the Sitkan Archipelago and several to the westward. The quality of all this coal located and worked for a brief experimental period was of so poor a grade that in no case has it been pronounced fit for use on steam-going vessels, being so highly charged with sulphur and other deleterious combinations. The value, however, of Captain Hooper's vein in the Arctic to the opening enterprise of steam whaling, and for the use of the revenue marine itself, must be of very striking moment. These experiments with Alaskan coal have been exceedingly thorough and patiently wrought out at Unga, where the most laudable, persistent, and even desperate determination has been manifested by the owners of certain ledges thereon to develop their holdings into mines of wealth. The steamers in the Territory bring their own coal with them, or have it sent up by tender from British Columbia Sound or California. The traders at the different posts where timber is scarce or entirely wanting use it now as their principal fuel, and it is the sole fuel on the seal islands.

In regard to the reputed findings of large-paying gold mines and other precious minerals, I can only say that, as far as is known, there is nothing of the kind in western Alaska; at least there is nothing located and worked as such, though the prospecting or searching is as active as it has been since the transfer. The surface of the country in southern Alaska being so mountainous and concealed by the timber cloak everywhere covering it, it is of course a slow and exceedingly difficult undertaking to penetrate any distance back, up, and among the mountain valleys in search of mineral. The color of gold can be washed out of the sands of every little stream emptying into the ocean on the northwest coast, and in many places it can be found by searching in the surf-beaten beaches of the seacoast itself. But the question immediately arises with the miner, "Will it pay?" and by that he means, "Will it yield me from $4 to $10 a day if I work it?" Less return for his labor does not satisfy him, nor will it bring others to the places.

The gold-bearing belt of the Rocky Mountain divide, so familiar to us as it crops out all through our States and Territories, reaches undoubtedly to the Arctic Sea itself. But it must be borne in mind that with every degree of northern latitude as we ascend we cut off working days, as the icy grasp of frost checks the flow of water and shuts down the mills, so that when this gold-bearing belt crosses into our Alaskan boundary, far back and concealed from the sea by the towering summits of the coast range, we find it practically barred out from our miners unless they shall find the free gold and a rich quartz in unwonted abundance.

The quartz mines in the immediate vicinity of Sitka have been abandoned as worthless under present conditions, the output officially

reported for the year ending June 30, 1880, being but a trifle over $6,000, with an expenditure of nearly four times that sum. Since 1880, however, much surface gold has been found in the mountains on Gastineaux Channel, between Douglas Island and the mainland, chiefly from the decomposed croppings of ledges. These discoveries have attracted several thousand miners and their followers, and a thriving town, now named Juneau City, has sprung up, claiming very bright prospects in spite of the long interval of enforced idleness between December and April. The never-satisfied prospector has already left these diggings behind and pushed on from the head of Lynn Canal across the divide separating the headwaters of the Yukon from the North Pacific; but whatever discoveries have been made there are located in British Columbia, and consequently without the pale of this report.

The Cassiar diggings, which have during the last five or six years given quite an impetus to Alaskan travel by Fort Wrangell and Sitka, are situated in the territory or dominion of British Columbia, far up the Stakhin River, and away from our limits. They have been failing lately, and the last season's work has been one of sore disappointment and discouragement to the few miners who still hold on.

In Norton Sound, within the deep, land-locked shoals of Golovin Bay, there are reputed to be leads of silver ore and graphite. Cinnabar has also been discovered on the Kuskokvim, and assays made of the ore in San Francisco indicate a very valuable discovery there. Other than these minute circumstances we have no better evidence of the mineral wealth of Alaska to offer at this writing, unless we refer to the old legend and partial corroboration of it in regard to the presence of an extensive deposit of copper in situ on the banks of the Atnah or Copper River. There is also a mine opened, but just at present not worked, on Prince of Wales Island. This little mine, however, we might say is owned by British Columbians, who say that they are barred out from their legitimate home market on account of the Dominion tariff; hence they are idle.

In connection with the discussion of the mineral resources of Alaska I insert here a translation of the report rendered by Lieutenant Doroshin, who was intrusted by the Russian-American Company with an examination of the gold-bearing deposits on the Kenai Peninsula. Doroshin has frequently been accused of suppressing the results of his explorations in order to please the Russian-American Company, but from his report and private letters on the same subject it would seem that such was not the case. He wrote as follows:

In the year 1850 I was ordered to the Gulf of Kenai (Cooks Inlet) in order to investigate the indications of gold first discovered by me in 1848, during my first visit to that neighborhood. I left Sitka on the 1st of May and returned on the 4th of October. During this period the laborers under my command were at work only forty-nine days, the remainder of the time being spent in excursions to Nuchek and Ochek islands and Voskressensky Bay, and also in the laborious ascent of the river Ka-ktnu, and the tedious transportation of provisions and implements on the backs of men.

In 1851 I left Sitka on the 8th of May and returned on the 30th of October, calling at Nuchek and St. Paul Harbor (Kadiak Island). The working days during this summer numbered sixty-six, much time being wasted in the transportation of provisions and tools. The working force during this season was the same as the last—12 men.

Under these circumstances my prospecting was confined to (1) the valley of the creek Tuslitnu, emptying into the lake Kastudilin, the head of the river Ka-ktnu; (2) the valley of the creek Taslikh-tnu, with its tributary ravines, and (3) the valley of the creek Chunu-ktnu, with several lateral ravines. The streams Taslikh-ktnu and Chunu-ktnu empty into the Skiliankh River, connecting the lakes Skiliamna and Kastudilin.

Nearly everywhere in these localities gold was found, but nowhere in a larger quantity than $\frac{1}{24000}$ of the dirt, or 16 grains of gold to 1 pood (36 pounds) of dirt.

Though the results of my two years' exploration of the Kenai Mountains were thus insignificant, they may be the foundation for more extensive search of the gold-bearing strata. Aside from the valley of the Tsulitnu, where I could not complete my investigations on account of a forest fire, only two other valleys, with their tributary ravines, were examined, and consequently only a small surface of the mountainous Kenai Peninsula has been touched, while nothing has been done in the main mountain ranges, of which the Kenai chain is only a branch.

In the following year (1852) Doroshin wrote to Prof. G. A. Gosse:

The small result of my labors has cooled the ardor of the chief manager of the colonies for gold seeking. I do not cease to hope, however, that later some other engineer will be more fortunate in the path pointed out by me, with better means than were at my disposal; in that case, of course, nobody will think of him who first found gold where there were no ancient diggings—where no grains of gold were found in the crop of a grouse [referring to an incident of gold discovery in Siberia], and where the natives have not even a name for the precious metal.

In November, 1855, Doroshin wrote to General Helmerson, member of the Imperial Academy:

Last summer I passed among the mountains of the Kenai Peninsula, where I had discovered traces of gold as early as 1848. In that year I became convinced that the alluvial sands of the site of the Rédoute St. Nicholas are auriferous. When we find gold in such localities there must be deposits of auriferous ores or sands somewhere. This reasoning and the peculiar combination of clay and diorite on the upper Ka-ktnu induced me to explore its headwaters. We found gold at the outset, and as we advanced up the valley it became evident that coarser particles of gold took the place of the at first barely visible scales.

AGRICULTURE.

I now pass to the agricultural and pastoral resources of Alaska. So much has been said upon this topic, of frantic declamation on one hand and indignant remonstrance on the other, that I shall be very cautious in my presentation of what I know to be facts.

In the first place, let me preface my remarks with the statement that the cereal crops can not be grown in Alaska; this has been settled by numberless patient and repeated tests in the most favored localities. Also, that the fruit trees and the small fruits of our gardens here, as we grow them and recognize them (unless it be the strawberry and the cranberry), can not be cultivated successfully up there. But these people do have in Alaska quite an abundance of indigenous, hardy shrub fruits, such as I have specified elsewhere. The statement made by certain high authority that wild apples are indigenous and perfect their fruit at Sitka is a mere figure of speech, but the other half of the assertion, that wild roses grow there, is true; and for that matter the wild rose blossoms with a rosy flush and the suggestion of perennial flowering up the Yukon, while the violets, the gaily colored pea, and indeed nearly 200 species of lovely blossoming annuals and perennials are found everywhere on prairie and forest land, on the bare hills of the Aleutian Islands, and covering the great moor and tundra of Alaska.

But taking up the subject of the vegetable garden, it is found that there are localities in Alaska where for the last eighty years or even more up to the present date good potatoes have been raised, though I should say perhaps that the raising of these tubers is not a certain success year after year except at one or two points within the Alexander Archipelago, namely, at the mouth of the Stakhin River, at Fort Wrangell, and on Prince of Wales Island. The potato grounds of Alaska, however, can with due care and diligence be made to furnish in the Alexander Archipelago, in Cooks Inlet, at Kadiak Island and islets contiguous, and at Bristol Bay a positive source of food

supply to the inhabitants. It is not generally known that on Afognak Island there are nearly 100 acres of land dug up in patches here and there which are planted by the inhabitants, and from which they gather an annual harvest of potatoes and turnips; but there are no fields spread out, squared up, and plowed anywhere in Alaska. The little openings in the forest or the cleared sides of a gently sloping declivity in sheltered situations are taken up by the people, who turn out with rude spades of their own manufacture, principally, for the purpose of subjugating and overturning the sod. Many of the gardens, noticeably those at the Kadiak village, are close by the settlement, while others are at some distance.

The potato crop at Kadiak in 1880 was a total failure; and this happens at intervals of from four to six years. The winter preceding the planting in 1880 was an unusually cold and protracted one, and the season, short at the best, was cut off by unwonted early frosts during September and the latter part of August. The usual growing season, however, opens early in June, from the 1st to the 10th, and the potatoes are planted in May, coming up and growing freely until October, when they are harvested. This growth of potatoes, fairly established and well defined, presents the only firm and tangible evidence of agricultural capacity within the limits of Alaska. The turnip grows and flourishes wherever the potato succeeds.

On Wood Island, Kadiak Harbor, during a number of years past, horses have been kept to perform certain labor in connection with a mysterious ice company, and for the use of these horses a field of 12 acres of oats is regularly sown; growing up, frequently heading out, but never ripening. This, however, is a secondary object with the planters, who cut the green crop for haying purposes.

There have been repeated attempts to raise stock cattle, sheep, and hogs in large herds within the borders of Alaska. The subject is one in which the Russians first naturally took a deep interest, for they were fond of good living, and were as desirous as any people could be to have the best of beef or mutton and the sweetest pork on their tables. They brought over hardy selections from the Siberian stock, placing the cattle at almost every point of importance for trial. The result after years of patient and persistent attention was that the herds on Kadiak Island throve the best and became of real service in assisting to maintain the settlement. Here there is a very fine ranging ground for pasture, and in the summer there is the greatest abundance of nutritious grasses, but when the storms of October, freighted with snow, accompanied by cold and piercing gales, arrive and hold their own until the following May, the sleek, fat herd of September becomes very much worn and emaciated in June. It has given its owner an undue amount of trouble to shelter and feed; hay, however, suitable for cattle, or at least to keep cattle alive, can be cut in almost any quantities desired for that purpose, but the stress of weather alone, even with abundance of this feed, depresses as it were and enfeebles the vitality of the stock so that the herds on Kadiak Island have never increased to anything approximating a stock-grower's drove, rarely exceeding 15 or 20 head at the most. Notable examples of small flocks of sheep which have been brought up since the transfer and turned out at Unalaska, Ounga, and elsewhere have done well. The mutton of the Alaska sheep when it is rolling in its own fat, as it were, is pronounced by epicures to be very fine. But the severe winters, which are not so cold as protracted, when the weather is so violent that the animals have to

huddle for weeks in some dark, low shelter, cause a sweating or heating of their wool, which is detached and falls off, greatly enfeebling and emaciating them by spring. The practice of the traders at some places now is to bring beef cattle up in the spring from San Francisco, turn them out into the grazing grounds on the Aleutian Islands, Kadiak, and even to the north, where they speedily round out and flesh up into the very finest beeves by the middle or end of October, when they are slaughtered. Some ludicrous instances occur in this connection when Texas cattle are disembarked in these unwonted nooks, where they charge from the gangway of the vessel up through the native settlements as though possessed of an evil spirit, while the natives dive into their barabaras with remarkable celerity and activity, peeping thence at intervals in anticipation of some fearful crisis. The animals at once repair to the solitudes of the mountain recesses of the interior, away from the settlements, where they remain undisturbed until they are hunted and shot by the traders.

The Russians familiarized some of these natives with horses as well as cattle; but a great sensation remained in store for these people after the transfer of the Territory, when mules were taken up there by the soldiers under the mistaken notion that they were going to be used in going about and over the country. These animals were a source of profound astonishment to the natives, and the mules manifested toward them an exceedingly vindictive and aggressive disposition, always charging, with ears laid back and threatened uprising of the heels, upon the luckless savages chancing to cross their feeding grounds, the warriors turning in swift, tumultuous flight from the advance of the unknown quadrupeds when they would have faced any number of bears without moving a muscle of their countenances.

Mules and horses, however, have no economic value here, there being no service for them on land. A little work is done with profit on the seal islands by mule teams, and these, perhaps, are the only draft or saddle animals that serve any useful purpose in the Territory, with the exception of those at Wood Island, before mentioned.

With regard to the raising of hogs, the propensity of these creatures to devour carrion on the seabeach bars them of much interest, and they are not encouraged anywhere. The same difficulties as specified above, however, occur in feeding and caring for them during the winter.

I feel fully warranted in saying that the extended coast islands and mainland of Alaska will not support any considerable number of our people as agriculturists, but it is also equally apparent that the existence of those who are living and who will always live in the Territory can be softened in many of its asperities by better attention to the development of the resources which are latent in the soil at many favored localities, notably at Bristol Bay, Kadiak, Cooks Inlet, and the Sitkan Archipelago. There is a singular indifference, with a growing disinclination of the people themselves to labor in this direction. In the times of the old Russian rule there were regular orders and regular squads of soldiery assigned to this purpose every year, and the old retired and patient colonial citizens were obliged by the terms of their indenture with the company to devote themselves wholly to agriculture. Now of course they are free to choose between the profits of hunting and the smaller gains of farming, and they naturally drop the latter and rally to the former. It will thus be seen that the subject of agricultural resources in Alaska is not a new agitation, and the result of American thought and industry; and it will be found that those

points located by the Russians eighty years ago as most suitable for their potatoes and other garden relishes, such as radishes and turnips, are the best to-day.

BUSINESS STATISTICS.

Owing to peculiar local circumstances and the nature of the traffic carried on in Alaska to obtain furs and fish, it is exceedingly difficult to arrive at an even approximately correct estimate of the volume of importations of provisions and dry goods. As an example of this I may cite the discrepancy existing between the sums obtained from the custom-house of San Francisco and those furnished by firms engaged in business in the country. At the San Francisco custom-house the books indicate shipments of provisions to Alaska from that port in the following quantities: Flour, 801,508 pounds, or not much over 3,000 barrels; hard bread, 3,403 cases; tea, 823 chests of 52 pounds each; sugar, 782 barrels and 2,463 half-barrels; and for the same period the books of two San Francisco firms trading in Alaska show shipments of over 5,000 barrels of flour and other provisions in proportion. At some points the consumption of imported provisions, such as flour, hard bread, tea, and sugar, is extraordinarily large, and this is especially the case in regions inhabited by the prosperous sea-otter hunters and on Pribilof Islands, where the native sealers have large incomes, and the consumption of flour amounts to a barrel per annum for each man, woman, and child—more than the average in civilized communities. It is reported by traders that the demand for flour and hard bread increases annually, even among the savage tribes of the interior. The demand for tea, also, is steadily gaining, and the consumption of sugar is universal wherever it can be carried by the traders, but is especially large in those sections of Alaska—especially in the southeastern division—where the creoles and natives understand the manufacture of alcohol from sugar and molasses. Including the southeastern division, which is supplied chiefly from Portland, Oreg., and British Columbia, the annual shipment of flour to Alaska may be estimated at not less than 10,000 barrels, or a barrel for every three individuals of its population. If to this are added 5,000 or 6,000 cases of hard bread, 1,200 chests of tea, and 2,500 bárrels of sugar it is seen that the trade with Alaska in these staples alone is assuming considerable proportions. The shipments of tobacco aggregated from 15,000 to 20,000 pounds. Of the value of the dry goods it is impossible to make an estimate, but it is safe to assume that it does not equal that of groceries or provisions.

From the above it would appear that Alaska, with its savage population of over 30,000, represents a larger volume of trade than any other portion of the United States inhabited by uncivilized tribes, even without reference to such mineral wealth as has been or may yet be developed within its limits, or to the net revenue derived by the Government above all its expenditure for Alaska from the lease of the fur-seal reservation on the Pribilof Islands.

The statistics relating to Alaska contained in the reports on commerce and navigation furnished by the Treasury Department are of a very unsatisfactory character, as a few extracts from these documents will serve to demonstrate. During the last year of Russian rule in Alaska we find the imports from Russian America to the United States for the year ending June 30, 1866, valued at $39,544, while the exports to Russian America were $104,315, of which $81,609 covered domestic produce. In the year ending June 30, 1868—the first year of American occupation—the total shipments to Alaska were valued at $56,067.

This represents the period covering the first rush of business men into the newly acquired country. During the years following this period both imports and exports apparently increased in volume, reaching the figures of $180,000 and $200,000 in value; but looking at the itemized list of shipments it is easily discovered that this trade is in transit from British Columbia, through the American port of Wrangell, to the Cassiar mines in British Columbia, the items showing large shipments of grain, mules, cattle, flour, hard bread, and groceries among the exports of Alaska, articles which should, of course, have been placed under the head of transit trade. All these successive reports evidently refer only to the shipments to and from Alaska through the nearest custom-houses of Port Townsend, Wash., and Portland, Oreg., the vast trade of San Francisco with all western Alaska not being considered at all. The statistics of immigration contained in the same Treasury reports may mislead, as they simply record the transit of miners and traders through Alaska from one point in British Columbia to mining camps in another section of that country. By far the largest portion of Alaska is removed from all communication with Sitka.

The shipping statistics derived from the same reports represent chiefly the shipping of the southeastern division. One reason for this state of affairs lies in the fact that the returns from the western ports of entry at Kadiak and Unalaska can be forwarded to the collector at Sitka only by the sailing vessels of fishermen and traders via San Francisco, and it often happens that these documents are delayed for months and even years.

As an instance of the deficiency of the shipping statistics I may mention that while the report of 1880 gives the number of sailing vessels registered as 7, aggregating 133 tons, in the same year there were registered at the port of Kadiak alone 11 sailing vessels, aggregating 175 tons in capacity.

CHAPTER III.—GEOGRAPHY AND TOPOGRAPHY.

THE MAP OF ALASKA.

The fact that the new map of Alaska published with this report differs essentially in many of its features from all the maps which have previously been published necessitates a few words explanatory of the methods adopted in compiling, of the reasons for the selection of authorities, and for changing the outlines of certain portions of the coast.

The southeastern section of Alaska, from the southern boundary to Cape Spencer, comprising the islands of the Alexander Archipelago, has been represented in accordance with the survey under the auspices of the British Admiralty, corrected to date by Commanders Beardslee and Glass, United States Navy, and Assistant William H. Dall, United States Coast Survey. In the topography of the section of the mainland forming the watershed between the Chilkhat and Yukon rivers, or rather between the Pacific and Bering Sea drainage systems, the late discoveries of the explorer Krause, of the Bremen Geographical Society, have been inserted, and the route to the eastern and western Kussoa lakes (the real heads of the Yukon) has been indicated.

The changes in Lynn Canal, or Chilkhat Inlet, and to the north of Cross Sound are quite remarkable. The waters of Glacier Bay extend

far to the northward, where heretofore a compact peninsula appeared on the maps and charts, while the positions of Sitka and a few other important points have also been corrected.

The intricate character of the deep-sea channels which form a network throughout this section leads us to the conclusion that future actual and connected surveys will probably result in essential changes of outline and in the location of hundreds of islands as yet not indicated on the map.

The boundary line between this portion of Alaska and the British possessions has been laid down as near as possible at the uniform distance of 10 marine leagues from the shore line of the mainland from the head of Portland Canal to the intersection of this line with the one hundred and forty-first meridian. The clause in the Anglo-Russian treaty of 1825, which was adopted in our treaty with Russia in 1867 as defining this boundary, states that this boundary shall be a line commencing from the southernmost point of the island called Prince of Wales Island, which point lies in the parallel of 54° 40′ north latitude, and between the one hundred and thirty-first and one hundred and thirty-third degrees of west longitude.

The said line shall ascend to the north, along the channel called Portland Channel, as far as the point of the continent where it strikes the fifty-sixth degree of north latitude. From this last-mentioned point the line of demarcation shall follow the summit of the mountains situated parallel to the coast as far as the point of intersection of the one hundred and forty-first degree of west longitude, and finally from the said point of intersection the said meridian line of the one hundred and forty-first degree in its prolongation as far as the Frozen Ocean. With reference to the line laid down in this article it is understood, first, that the island called Prince of Wales Island shall belong to Russia [now by cession to the United States]; second, that whenever the summit of the mountains which extend in a direction parallel to the coast from the fifty-sixth degree of north latitude to the point of intersection of the one hundred and forty-first degree of west longitude shall prove to be at the distance of more than 10 marine leagues from the ocean limit between the British possessions and the line of coast which is to belong to Russia, as above mentioned [to the United States by cession], shall be formed by a line parallel to the winding of the coast, and which shall never exceed the distance of 10 marine leagues therefrom.

We have absolutely no data for locating the summits of the chain of mountains "running parallel with the coast;" it is not even certain that there is such a connected chain, and consequently it has been thought best for the purposes of this map to run the boundary in conformity with the last paragraph in the clause of the treaty mentioned, at a distance of "10 marine leagues from the seashore of the mainland," in expectation of a future settlement of this altogether too indefinite line by treaty or convention between the United States and the British Government.

A survey with a view of locating the boundary in accordance with the obtuse wording of the treaty would be altogether too costly, but a straight line between certain easily defined points agreed upon by mutual consent would solve a difficulty which promises to arise in the near future, owing to the discovery of valuable mineral deposits on the very ground placed in dispute or doubt by the old treaty.

It may be stated here that a line from the point above mentioned, on the fifty-sixth parallel, to the intersection of the sixty-fifth parallel with the one hundred and forty-first meridian would nearly follow the present line in southeastern Alaska, while it would give to the United States one of the head branches of the Yukon River—the main artery of trade of the continental portion of Alaska—which is now crossed by the boundary at a point considerably below the head of steam navigation.

The coast line from Cape Spencer northward to Mount St. Elias has been drawn in accordance with the Coast Survey chart of the Mount St. Elias alpine region from observations and triangulations of Assistant William H. Dall, who discovered important errors in the vicinity of Dry Bay and at other points. Minute descriptions of natives, confirmed by observations of Mr. Dall, induced me to change the contour of Icy Bay. From Cape Yaktag to the mouth of Copper River the old outline, based upon Tebenkof's Russian atlas, has been retained, but the mouth of Copper River, which has heretofore been represented as a wide estuary, I found to be filled with low islands, intersected by narrow, winding channels. These islands were located by magnetic bearings only. In Prince William Sound the only change made consists in the relative position of the three headlands of Montague Island, in accordance with my repeated personal observations. The coast line of the sound is the same as on the Coast Survey charts of this section, which are based upon the surveys of Spanish, English, and Russian explorers.

In the Kenai Peninsula, the island of Kadiak, and Cooks Inlet no change has been made with the exception of the location of villages or settlements in accordance with personal notes of the compiler.

The outlines of the Aliaska Peninsula are essentially the same as in all earlier maps based upon the surveys of Lütke, Sarychef, and others, with the exception of a few corrections in the Shumagin group of islands, which were furnished by the United States Coast and Geodetic Survey.

In the interior of the peninsula my observations enabled me to insert a few alterations along one of the chief portage routes from Bristol Bay to Shelikhof Strait by way of the Naknek River and Walker Lake.

The Aleutian Islands are represented on this map in accordance with the charts of Sarychef and Tebenkof, with corrections to date by Assistant William H. Dall and party, of the Coast and Geodetic Survey.

The coast line from Bristol Bay to Cape Newenham is essentially the same as that found on the Coast Survey map of 1869, which latter is identical with that in Tebenkof's atlas.

In the interior of this section some details showing portage routes and settlements have been inserted from personal notes of the compiler.

The course of the Kuskokvim River has been retained as represented on the Coast Survey map of 1869, with the exception of a portion of its headwaters corrected from Indian maps and the description of traders.

The delta between the Kuskokvim and the Yukon mouths presents several striking and entirely new features, for which I am indebted to the discoveries of Mr. E. W. Nelson, United States Signal Service. Some years ago I was informed that the two deep indentations heretofore represented on all maps of Alaska to the north and south of Cape Vancouver do not in reality exist, and happily Mr. Nelson was in a position to confirm this report, and to furnish the real outline of the coast as laid down by magnetic bearings and close estimate of distances from points known and established. That gentleman, during a sledge journey performed in the winter of 1878–79, struck the coast of Bering Sea at a point a little to the southward of Cape Rumiantzof, and taking his departure from that well-established point, followed the coast to Cape Vancouver, another known point, and thence along the shore into the mouth of the Kuskokvim, finally cutting across the center of the delta to the banks of the Yukon. This journey resulted in the important discovery that Cape Vancouver is located on an island formed by two wide channels uniting in a large inlet far inland. This island was named

miles to the extremity of the Aliaska Peninsula, whence the Aleutian chain of islands stretches toward the coast of Asia in another long curve, with its convexity to the south. The highest latitude of that great bend of the main coast line north of Sitka is 60° 30′, while the southern point of the Aliaska Peninsula is in latitude 55°. From the strait of Issanakh, which separates the peninsula from the island of Oonimak with its great volcanic peaks covered with eternal snow, the Aleutian Islands sweep in a grand curve to the southward and westward for 750 miles, reaching a latitude of 51° 30′ in the meridian of Greenwich, and thence northward and westward 125 miles to Attoo, the western extremity of the United States. The Aleutian Islands are certainly the summits of a continuation of the main Alaskan range of mountains which sweeps along the Alaskan Coast from the boundary around the head of Prince William Sound and Cooks Inlet and down the Aliaska Peninsula. The whole chain, at least that part of it west of Mount St. Elias, is marked by many volcanic peaks, several of them still active. The mountains of the mainland between Cross Sound, the northern line of the Alexander Archipelago, and the east shore of the Kenai Peninsula are very high, Mount St. Elias measuring over 18,000 feet, Mounts Crillon and Fairweather being but little less in height. The peaks of the Chugatch Alps, encircling the north side of Prince William Sound, loom up grandly under their covering of eternal snow; and on the west side of Cooks Inlet are found mountains reaching an elevation of from 10,000 to 12,000 feet. From the Ilyamna Volcano down the peninsula the peaks gradually decrease in height—Shishaldin, on Oonimak Island, measuring nearly 9,000 feet; the Makushin, on Oonalashka, over 5,000, and the remaining mountains of the chain to the westward varying from 3,000 to 6,000 feet in height. The north side of the Aliaska Peninsula presents a low and sandy shore. The great extent of water lying within the curve of the coast between the southern boundary and the southern end of the Kadiak Archipelago has been named by the United States Coast Survey the Gulf of Alaska. North of the Aliaska Peninsula the coast has a general northerly and westerly direction to Bering Strait, indented by three large bays or sounds—Bristol Bay, the Kuskokvim estuary, and Norton Sound. In the Arctic the coast of Alaska turns eastward with the sole interruption of Kotzebue Sound, in latitude 66° north. The island of Nunivak, the Pribylof group, and St. Lawrence and St. Matthew islands are situated off the coast of Bering Sea.

From Dixon Sound and Portland Canal, in latitude 54° 40′, to the Chilkhat Inlet and Cross Sound, in latitude 59° 40′, the mainland is shielded from the sea by a vast archipelago of islands, large and small, most of them being mountainous throughout, and all covered with a dense growth of spruce, hemlock, and cedar. The dimensions of this great accumulation of islands average about 75 miles east and west and 260 miles northwest and southeast, divided by hundreds of navigable passages. The number of these islands is given as 1,100, divided as follows: Prince of Wales Island and those closely surrounding it number 135; from Portland Canal to Cape Caamaño there are 134; from Cape Caamaño to the middle of the Stakhin, 77; between Chatham, Frederick, and Stakhin straits, 350; Admiralty Island and those surrounding it number 118; Baranof and adjacent islands, 138; Chatham Strait north of Admiralty Island contains 29; and Chichagof and islands adjacent to Cross Sound, 109. The fiords of Norway and the "scheres" of Finland sink into insignificance before the great dimensions of these straits and sounds. Among the larger passages dividing this archi-

pelago, Chatham Strait, named by Vancouver, is the most important, stretching in a straight line 195 miles in a northerly direction from Cape Ommaney, in latitude 56° 10′, to the mouth of Chilkhat Inlet, in latitude 59° 40′, with an average width of 7 or 8 miles and a great depth of water. Several large passages connect this waterway with other straits to the eastward and also with the sea north of Sitka. Of the latter, one called "Peril" or "Destruction" Strait leads directly to Sitka, while the other consists of Cross Sound or Icy Strait, about 75 miles north of Sitka. The Alexander Archipelago embraces a shore line of nearly 8,000 statute miles.

The outline of this section of Alaska is naturally a very irregular one on account of the numerous straits, bays, and islands. The south coast, facing upon Dixon Sound and Portland Canal and extending 80 miles from the latter westward to Cape Kaigan, exhibits numerous headlands and broken shore, steep hills, and mountains covered with dense forest to their summits. The mountains attain an elevation of from 2,000 to 3,000 feet, with scarcely a valley between them.

The extensive eastern arm of Dixon Sound, called Portland Canal by Vancouver, forms the southeastern dividing line between British Columbia and Alaska. It begins in latitude 54° 41′, and its northern head is in latitude 55° 45′ and longitude 149° 54′. The inlet is but a little over a mile in width.

On the island of Tongass, situated a little to the westward of the mouth of Portland Canal, a military post was established soon after the transfer of Alaska to the United States, but it has since been abandoned; a few of the buildings, however, still remain, surrounded by the easternmost native villages of all Alaska. Cape Fox, the southerly extremity of the mainland within the American territory, is situated in latitude 54° 45′ 30″. From the north side of Dixon Sound several large passages extend to the northward—the Revilla Gigedo Channel, or Tongass Narrows, between Cape Fox and Cape Northumberland; Clarence Strait, between Cape Northumberland and Cape Kaigan; and Cordova Bay or Strait, between Cape Chacon and Cape Kaigan, having connection with Bucarelli Sound. The largest of these passages, Clarence Sound, runs in a northwesterly direction for 120 miles, with an average width of from 15 to 20 miles, and finally mingles its waters with those of Chatham Strait, its western shore being formed by Prince of Wales Island. Strange to say, this large island, which has been known to the maritime nations of the globe for over a hundred years, still remains unsurveyed, and has been variously named an island and an archipelago, and accounts of natives report numerous navigable passages cutting through it here and there. From the eastern side of Clarence Strait great arms penetrate in a general northeasterly direction until they reach the base of the coast mountains. Their waters are navigable, the shores bold and covered with timber, and the whole forms an intricacy of inland navigation difficult to describe in detail, and a chart affords but a faint idea of its perplexing grandeur. There seems to be no harbor on the mainland in this vicinity. The port of Wrangell is located on an island of the same name a short distance from the mouth of the Stakhin River, in latitude 56° 31′ and longitude 132° 23′. The Russians had a small stockaded station here called Rédoute Saint Dionys, which was subsequently leased to the Hudson Bay Company.

After the acquisition of the country by the United States a military post was established here, but was finally abandoned in 1877. The Stakhin is the largest river of southeastern Alaska, but lies within our

boundaries for a distance of only 30 miles in an air line from its mouth. The Dominion Government claims a boundary even nearer to the sea-coast, including the spot where British ocean steamers land cargoes and passengers, and the advent of the British here has destroyed the once large transit trade of Wrangell. The interior of the country adjoining this river is broken into a succession of sharply defined mountain ranges separated by narrow, deep valleys similar to those between the islands of the coast.

The topography of the Alexander Archipelago is the type of that of the interior within our boundaries. Beyond, on the upper river, within the British possessions, there is a large rolling plateau stretching between the Coast Range in the west and the prolongation of the Rocky Mountains in the east. Like all Alaskan rivers, the Stakhin takes its head from a succession of great lakes. A number of glaciers descend from the snow-covered peaks on both sides of the river down to its banks. The largest of these is situated on the right or west bank, with its face on the river 4 or 5 miles in width, and its length is said to be over 60 miles. The Indians relate that in ancient times this glacier extended across the river, forming an icy arch over the stream, but in course of time the spring freshets washed away the obstruction. Some officers of the Russian navy attempted to explore this huge glacier to its head, but they probably fell into one of the numerous chasms, as they were never heard from again.

One wide passage from the mouth of the Stakhin to the ocean, called Stakhin Strait, runs westward between Prince of Wales Island on the south and the Kehk Archipelago on the north, reaching the sea between Cape Ommaney on Baronof Island and Coronation Island on the south. Another passage, Prince Frederick Sound, runs from the mouth of the Stakhin northward along the coast of the mainland, and then westward between Admiralty Island and the Kehk Archipelago until it empties into Chatham Strait. A branch of this channel, Stephens Passage, runs northward between the mainland and Admiralty Island until it mingles its waters with those of Chilkat Inlet. At about the middle of its course Takoo Inlet opens on the east, and a little beyond this Douglas Island divides the strait into two channels. This is the locality where the most promising discoveries of gold placer and quartz mines have thus far been made. Juneau City, or Harrisburg, a mining town of recent growth, is situated on the mainland opposite Douglas Island. From the junction of Stephens Passage, Chilkat Inlet, and Chatham Strait a wide channel, called Cross Sound, or Icy Strait (by the Russians), opens between the mainland in the north and Chichagof or Hoonia Island on the south. A large bay, not heretofore represented on any chart, was definitely located last year on the northern side of Cross Sound by the officers of the United States sloops of war *Jamestown* and *Wachuset*. Glacier Bay extends in a northwesterly direction from the north shore of Cross Sound, between Lynn Canal or Chilkat Inlet and the Pacific, for a distance of about 40 miles. About 20 miles from its mouth there is an island 5 or 6 miles in length named Willoughby Island, and around the shores of the bay are five immense glaciers. The first, in the vicinity of Willoughby Island, is about half a mile wide and 150 feet high; the next is about three-fourths of a mile wide and 200 feet high; the third, known among the Indians as the "great glacier," is situated at the head of the bay, and is about half a mile wide and from 200 to 300 feet high; the fourth, on the northern shore of the bay, is about half a mile wide and 150 feet high, and the fifth and smallest is about half a mile wide and 50 feet high. Nearly all

the ice floating in this bay and Cross Sound comes from these glaciers. The sea washes under them, honeycombs the ice by its incessant lapping, and pieces are broken off constantly. Prof. John Muir, an eminent geologist of the Pacific Coast, describes another huge glacier located here, as follows:

On the northern shore of Glacier Bay, north of Willoughby Island, there is a large inlet, from 3 to 4 miles wide at its mouth. It runs to the northward and westward 5 miles, and at its head there is an immense glacier which extends across the head of the inlet for a distance of 3 miles. Ten miles back from its face it is 10 miles wide, and near this, its greatest width, sixteen branches of the first class unite to form one immense glacier. Four of the sixteen branches are each over 2 miles wide, while nearly all have tributaries. The distance from the face of the glacier to its farthest removed fountain is about 40 miles.

The port of Sitka is situated on the west coast of Baranof Island, in latitude 57° 02′ 52″ and longitude 135° 17′ 45″.

Westward of Cross Sound the coast-mountain range attains an elevation of about 18,000 or 19,000 feet, covered far down with perpetual snow, the highest peaks (Mounts St. Elias, Fairweather, and Crillon) looming up in silent grandeur above them, visible in clear weather a distance of 150 miles at sea. From Lituya or Port des Français westward the immediate seacoast is comparatively low, wooded ground, but closely backed by icy declivities that come down from the high mountain ranges, and at the head of Yakutat Bay reach the coast land. This narrow strip of low coast, interrupted only in the vicinity of Icy Bay by a succession of precipitous glaciers fronting the sea for 15 or 20 miles, extends to the mouth of Copper River. Here the sediment carried down from the mountains has been deposited for thousands of years, until a vast low delta has been formed, through which the waters of the river find their way to the sea in innumerable channels. In many places the swift current has carved large basins and lagoons out of this soft material, the whole presenting the spectacle of a perfect labyrinth of lakes and streams. The mountains rise up abruptly from the northern edge of this flat to a height of 8,000 or 9,000 feet.

Vistas of the far interior are afforded here and there by the gradually sloping masses of glacier ice. West of the Copper River the foot of the Chugatch Alps is bathed by the sea without any intervening low land, with only two or three exceptions, and these have been utilized for the location of settlements. The mountains on the northern side of Prince William Sound must reach a height of 10,000 or 12,000 feet, all densely wooded up to a height of about 1,000 feet, and covered with eternal snow from their summits to within 3,000 to 4,000 feet of the sea level. The interior of Prince William Sound, on the Gulf of Chugatch, forms a basin almost entirely landlocked, being sheltered from the south by the islands of Nuchek and Montague; but although thus surrounded on all sides by land, it is by no means a calm and pleasant sheet of water to navigate, as furious gales and "woollies" sweep down the mountain sides without a moment's warning, compelling the luckless traveler in a small craft or canoe to seek the lee of one of the hundreds of islands and capes studding the coast. Immense glaciers on the northern shore are constantly descending into the sea and shedding fragments of ice, both large and small, that are carried off by the tide in compact fields or loose masses, still more endangering navigation. The western shore of the sound, the northeast coast of the Kenai Peninsula, is very much cut up into deep bays and fiords, and everywhere mountains can be seen looming up in the background with snowy peaks and ridges. The deepest indentation in this section of the coast of the peninsula is Resurrection Bay, which was long years ago utilized

by the Russians as a shipyard. This bay affords the only harbor in the vicinity, though its entrance is beset with islands and the approach made difficult to sailing vessels. From Resurrection Bay in a southwesterly direction the coast is one succession of deep fiords, but, exposed as it is to the fierce easterly gales prevailing here at nearly all times of the year, it is shunned by navigators, especially because even the deepest and most extensive bays do not afford a single anchorage, so that vessels entering them to find refuge from storms would still be at the mercy of the tides.

The entrance to Cooks Inlet, or the Gulf of Kenai of the Russians, lies between Cape Elizabeth, on the southwestern extremity of the Kenai Peninsula, and Cape Douglas, a bold promontory jutting out from the Aliaska Peninsula. Nearly half way between the two is a group of bleak, naked rocks called the Barren Islands, which, placed as they are in mid-channel of the tide rushing into Cooks Inlet from the ocean, cause violent and irregular tidal currents very dangerous and perplexing to the navigator. During calm weather the so-called "tide-rip" will toss a craft about more violently than any sea stirred up by wind, and a sailing vessel caught within a few miles of the Barren Islands in the "tide-rip" without wind is irresistibly drawn to destruction upon the rocks.

Just above its mouth the waters of Cooks Inlet widen out into the Gulf of Kamyshak on the west and Kuchekmak Bay (called "Chugachik" on the Coast Survey maps) on the east. On the east shore the mountains are not high, and contain extensive coal veins of an inferior quality, but on the west the main Alaskan chain of mountains rears up several volcanic peaks to a considerable height, rising abruptly from the seacoast with a narrow belt of shelving woodland intervening. North of the indentations mentioned the shores of Cooks Inlet again approach each other to a distance of not over 30 miles between Anchor Point on the east and Mount Isaac on the west. From this point northward and eastward the eastern shore is low and flat, with an elevation of from 50 to 100 feet above the sea. High ridges of mountains traverse the interior and eastern side of the Kenai Peninsula, but between them and the coast there is a strip of marshy tundra, wooded along the river courses and varying from 40 to 50 miles in width. As the inlet contracts still further, especially between the promontories of East and West Foreland, the tides increase in velocity and violence of action until they attain a speed of 8 or 9 knots with an average vertical rise and fall of 24 to 26 feet. The northeastern extremity of this vast inlet or gulf which Cook entered with the expectation of finding a northwest passage, and, being disappointed, applied to it the name of "Turnagain," equals in tidal phenomena the Bay of Fundy. The flood comes in in a huge "bore," with thundering noise and astonishing rapidity, and a traveler advancing with it in a canoe experiences the peculiar sensation of seeing one high bank of clay and gravel after another apparently sinking before him as he is lifted up and carried over by the inpouring tide. From the mountains surrounding this branch of the inlet innumerable avalanches sweep down their rocky and wooded slopes, demolishing large sections of forest and piling up rocky débris to such an extent as to cause frequent and total changes in the aspect of the country, while the outlines of the coast undergo equally perceptible modifications from the action of the tides.

What the country north of Cooks Inlet is like no civilized man can tell, as in all the years of occupation of the coast by the Caucasian race it has remained a sealed book. The Indians tell us that the rivers lead

into lakes and that the lakes are connected by rivers with other lakes again, until finally the waters flow into the basins of the Tennanah and the Yukon; but conflicting with this intermingling of the waters are stories of mountains of immense altitude visible for hundreds of miles. The natives living north of this terra incognita give, however, a similar description, which may be accepted until reliable explorers are enabled to penetrate this region.

On the western side of Cooks Inlet the main Alaskan chain of mountains, called by Dall the Chigmit Range, rises abruptly from the sea in steep ridges and peaks, the highest of the latter being the Rédoute and the Ilyamna mountains, both volcanic and emitting smoke. Only at two points along this coast within the inlet does low land intervene between the mountains and the shores, at Toyonok and at Kustatan, both of which localities have been utilized by the natives for establishing settlements. Up to the height of about 1,000 feet all these mountains are densely wooded. From Kamyshak Gulf, situated between Mount Isaac and Cape Douglas, a portage is made over a slight depression in the ridge to the basin of the great Lake Ilyamna, but on the southwestern shore of the bay the mountains rise again to a considerable height, culminating in the four peaks to the westward of Cape Douglas. The last-named cape is one of the most prominent and boldest in shape of the many Alaskan promontories, jutting out, as it does, at a right angle for a distance of several miles into the sea, with a sudden descent of over 1,000 feet into the waves of Cooks Inlet.

The same chain of mountains extends down the south coast of the peninsula, varying in height between 5,000 and 8,000 feet, with peaks much eroded by glacial and meteorological action. The numerous glaciers existing throughout the upper regions of this mountain chain do not anywhere approach the seacoast, as is the case with Mount St. Elias and the Chugatch Alps, these formations being found only at high altitudes, generally facing westward and southward.

Two distinct and continuous lines of "watermark" can be observed along the whole of this chain, one at an altitude of 1,000 feet, the other perhaps 500 or 600 feet above. Both of these lines show the effects of the wash of the ocean for ages, together with many petrifactions of mollusks and other marine life. The natural conclusion forced upon the observer is that the whole peninsula of Alaska has undergone two successive periods of elevation from volcanic action, and that this region would afford a highly interesting field of research to geologists. It is a significant fact that no glacial action is observable below the upper sea level.

The immediate seacoast here is cut up into innumerable fiords and coves, and lined with rocky islets.

The term "mountain chain" applied above to the elevated portion of the peninsula does not, perhaps, quite describe a very peculiar formation. The mountains or mountain groups are interrupted from time to time by depressions, but these do not at all bear the character of mountain passes, as they consist of low, marshy plains, extending entirely across the peninsula, varying very much in width. A similar formation can be found on the coast of Prince William Sound, where outlying spurs of the main chain are frequently divided in the same way. The impression created in the mind of the beholder is not that of a continuous alpine chain, but rather of a series of islands, such as the Aleutians, raised by successive volcanic action until the straits between them are left dry. These depressions serve as the portage routes across the peninsula. A careful observer could easily recognize distinct

islands in the mountain groups of Morshovia and of Belkovsky, connected with each other and with the Pavlosk volcanic group only by low, swampy isthmuses. Again, the mountain groups opposite the Shumagin Islands, containing the Veniaminof and other volcanoes, loom up, entirely isolated by similar depressions, north and south. Between Moller and Zakharof bays the portage is made in half an hour from the waters of the north Pacific to those of Bering Sea.

Other swampy passages lead through from the Bays Chigmik and Kishulik to the north coast of the peninsula. Nearly all these isolated mountain sections bear a peculiar resemblance to the outward shape of the island of Oonimak, the first of the Aleutian chain that is actually separated from the peninsula, though only by a strait too shallow to be navigable. That an elevation of this region has taken place is confirmed by abundant evidence, and altogether it does not seem at all improbable that what now resembles from a distance a long mountain range was once a chain of islands.

At Cape Atushagwik the coast of the peninsula approaches nearest to that of Kadiak Island, the width of the strait here being only a little over 18 miles.

In the vicinity of Katmai both coal and petroleum have been found, but not abundant in quantity or excelling in quality.

The volcanic group of the Pavlosk Mountains stands, as already mentioned, entirely isolated with its two craters, of which one is still active, while the other is reported to have been extinct since the year 1786. From this region also samples of coal of inferior quality have been procured. South of Pavlof Bay another volcano rears its jagged crown, separated both north and south from the mountains.

In the neighborhood of Belkovsky and Morshovia several volcanic peaks can be observed, but they have not been active within historic times.

On rounding the southern extremity of the peninsula and turning northward and eastward a total change in the aspect of the coast can be observed. Low, sandy reaches and slightly elevated moorlands cover the wide interval between the mountains and the shores of Bering Sea, interrupted here and there by lake-fed streams and rivers. In the vicinity of Ougachik the volcanic character of the country disappears entirely, the rock formation being altogether of granite and quartz, and pumice stone and chalk are only washed up by the sea. All along the coast from here we encounter gray granite, hornblende, serpentine, porphyry, and sandstone, but all along, at an altitude of about 300 feet above sea level, parallel strata containing fossil bivalves appear on the faces of bluffs. As we advance northward the interval between mountains and seacoast widens, until in the vicinity of Lakes Walker and Ilyamna swampy plateaus nearly 100 miles in width are found, dotted with many lakes.

Proceeding northward along the coast of the mainland the first deep indentation of the shore line is Bristol Bay, into which the waters of Lake Ilyamna flow through the Kvichak River. From the southern extremity of Aliaska Peninsula to this point Port Moller affords the only harbor for shipping, though three rivers, the Sulina, the Igagik, and the Naknek, flow into Bering Sea from the mountains in the east. In the vicinity of the mouths of the last two streams the shore is high and rocky, but only few traces of volcanic action can be discovered. North of Lake Ilyamna high mountains of the main Alaskan range protrude between that sheet of water and the Nushegak River, its

spurs approaching nearest the coast immediately behind the Nushegak post and settlement. Other spurs of the same range of mountains and isolated groups of hills appear at long distances from each other on the coast of Bering Sea, the intervals being filled up apparently with alluvial, swampy soil, not altogether level, but gently rolling. The earliest intelligent observer of this region, the Russian missionary Veniaminof, described the conformation of this section of the country as follows:

Slight elevations can be found along the whole extent of the American Coast of Bering Sea; they are in nearly all cases connected with the mountains in the interior. If the observer ascends to a height the country appears to him like a heaving ocean suddenly become stationary, with its waves transformed into sand and mud; these waves are now covered with vegetation, but their outlines are still very striking. In the midst of this dry sea we find occasionally high, rocky islands entirely separated from the neighboring hills.

To the westward of Nushegak the mountains first reach the coast on both sides of the Bay of Kulluk. The summits of this range as seen from the lakes forming the portage between the bays of Kulluk and Nushegak are very jagged in outline, rising abruptly in almost perpendicular blocks and peaks too steep to afford lodgment for the snow. The capes and headlands jutting out from this range into the sea are frequently composed of sandstone worn into fantastic shapes by the action of the tides and changes of temperature. The next great elevated headland is Cape Newenham, which forms the terminal point of a rather low range of hills running parallel with the left bank of the Kuskokvim, west of the Tuluksah River. At Cape Newenham these hills culminate in two towering peaks between 2,000 and 3,000 feet in height. Between this point and Cape Vancouver in the north the country on both sides of the wide estuary of the Kuskokvim is evidenty of an alluvial formation, low and swampy. Both at Cape Vancouver and on the island lava is found, in addition to many other evidences of volcanic origin; and the same is true of the islands farther off the coast—St. Matthew and St. Lawrence. At Cape Rumiantzof, in latitude 61° 47′ is another aggregation of volcanic hills rising like mountainous islands from the tundra.

The delta of the great Yukon is of course entirely alluvial, with the exception, perhaps, of the isolated hills of Kusilvak, which give indications of volcanic origin. From the northern mouth of the Yukon eastward the south coast of Norton Sound consists of low, rocky hills of lava and basalt. Between the small streams of Pastolik and Pastalak are high bluffs of basalt, and the sandstone cape of Vsachaghik looms up between 400 and 500 feet from the sea level. The islands of St. Michael and Stuart are comparatively recent lava formations, and contain several extinct craters. The traditions of the natives here speak of the island of St. Michael as having risen from the ocean, and old people living in Tebenkof's time related to him that twice within their recollection the whole island was covered by the sea. From St. Michael northward the chain of low hills composed of lava and basalt runs parallel with the coast, averaging in height from 200 to 300 feet, but at a distance of about 30 miles inland a few peaks attain a height of between 1,000 and 1,500 feet. At Cape Denbigh a granite formation appears, jutting out into the sea at a right angle with the volcanic range of hills. The shores of Norton Bay are low and all the alluvial deposits contain bones, tusks, and skeletons of the mammoth and mastodon. In the north coast of Norton Sound we find the deep indentation of Golovin Bay between two high points, Cape Derby and Stony Cape. The interior at the head of Golovin Bay is low, and a portage route extends

thence by means of lakes and rivers to Grantley Harbor. From Stony Cape to Cape Rodney the shore is low and level, but in the interior a few high mountains are visible, covered with snow.

Off the coast, not far to the eastward of Cape Rodney, there is the small island of Aziak or Sledge Island. It has a circumference of only 12 miles, and is covered with large blocks of granite and basalt. The island contains a small village and is the favorite trading mart of the Innuit tribes of both continents. Still farther to the north, opposite to the entrance of Port Clarence, lies Kings Island, a precipitous mass of rocks some 700 or 800 feet in height, inhabited by about 100 Innuits; who have carved their dwelling places into the almost perpendicular sides of the cliffs at a height of over 50 feet from the sea level. Only one or two narrow paths lead up from the water's edge to this northern Gibraltar, which also bears traces of volcanic origin.

Port Clarence consists of two capacious basins, the outer one sheltered from the sea by a long semicircular tongue of land of alluvial formation. The inner basin, Grantley Harbor, is surrounded by deep cliffs of slate; and from its head or eastern extremity the portage route leads to Golovin Bay, as mentioned above. A chain of hills from 2,000 to 3,000 feet in height extends from Port Clarence on the coast north-northwest terminating in Cape Prince of Wales. The formation of this cape appears to be basaltic, its almost perpendicular lines being frequently interrupted by steep, narrow gulches through which small streams find their way to the sea from the swampy tableland above. In about mid-channel between Cape Prince of Wales and East Cape lies the Diomede group, consisting of three small islands, of which two are within the United States boundary. They all rise abruptly from the sea to a height of a few hundred feet, but are level on top.

From Cape Prince of Wales eastward and northward the coast is low and swampy until we reach the vicinity of Kotzebue Sound and Choris Peninsula, where ridges of slate and chalk appear on the coast, generally running parallel with it. The inner shores of the great estuary of Kotzebue Sound are generally low, the gravelly soil resting upon a foundation of blue clay. Occasionally this blue clay rises into bluffs of a few hundred feet in height, and the whole formation contains numerous fossil remains of the mammoth and mastodon. The few small islands within the inlet are isolated masses of granite covered in sheltered localities only with a thin coating of sphagnous vegetation.

Kotzebue Sound is by far the best harbor in this section of the Arctic Ocean, and is much frequented by whalers and illicit traders in liquors and arms. Proceeding hence northward we find several chains of saddle-shaped hills interrupted here and there by wide depressions, a few pyramidal peaks, and steep, isolated rocks. The general formation of these is said to be slate and clay. At Cape Lisburne the cliffs rise abruptly to a height of 850 feet above sea level. Here also slate and chalk seem to predominate, but a short distance to the eastward carboniferous veins of considerable width appear in horizontal layers along the sandstone cliffs overhanging the seashore. The same formation continues from here eastward to Point Barrow and the eastern boundary of Alaska, receding occasionally to a distance of 10 or 15 miles from the seashore, and then advancing again, forming steep but low capes and headlands, the most prominent of which is Point Barrow, in latitude 71° 22′.

To complete the description of the topographical and geographical features of continental Alaska it is necessary to follow up the basins of the Yukon and Kuskokvim rivers. The Yukon Delta, as already stated

above, is altogether alluvial, but between Oonalakleet, on the east shore of Norton Sound, and the Yukon River there is a chain of hills consisting of granite and slate forming the watershed between the Oonalakleet River and the Anvik, a northern tributary of the Yukon. East of the Anvik the mountains increase in height until in the vicinity of Ikogmute, where on the right bank of the river a few peaks rise to a height of 2,500 feet.

The best description extant of the topography of this river is that of Capt. C. W. Raymond, United States Army, which covers the distance between Fort Yukon and the Russian mission at Ikogmute, just mentioned. Captain Raymond states that Fort Yukon is situated in latitude 66° 33′ 47″ and longitude 145° 17′ 47″, at a point where the Yukon receives the waters of the Rat or Porcupine River, a large tributary emptying on the right bank and flowing from its headwaters in a general direction a little south of west. From Fort Yukon to the mouth of the Chetaut River, a distance of about 200 miles, the river has a general direction about west-southwest, the country on both sides of the stream being low and level, usually consisting of sand or gravel. The average width of that portion of the river is about three-quarters of a mile, but in some places, measured across its numerous islands, it widens out to 5 or 6 miles. The current, through all its passages, is extemely rapid, and in many places the deepest channel does not carry more than 3 feet of water. Vegetation on the banks and islands is principally small willow and poplar, with occasional groves of spruce and birch. The principal tributaries in all this section of the river flow from the north, but none of them seem to be of much importance, and no native villages are known to exist.

From the mouth of the Chetaut River, however, the Yukon rapidly changes its character; the islands disappear, the banks rise into hills, and the stream gradually narrows into one channel, deep and rapid, until it finally rushes with great velocity through the Rampart range of hills. The bluffs composing this range rise abruptly from the water's edge, and are composed principally of a hard greenish rock, though slate is occasionally observed, and at the principal rapids a ledge of granite crosses the river. Most of the hills are covered with groves of spruce and birch, but the trees are all small and in many places they lie for some distance scattered in every direction, showing the small depth to which their roots descend in the frozen ground and the great force of the prevailing winds. From the Chetaut River to the Rampart Rapids, a distance of some 60 miles, the Yukon flows in a direction nearly northwest, and averages about two-thirds of a mile in width, which decreases at the rapids to about 150 yards. The tributaries emptying into this section are also chiefly from the north and small in volume. The first native village met after descending from Fort Yukon is situated just below the rapids. From here to Nulato, a distance of some 240 miles, the river has a general direction about west by south. There are, however, many bends, although they are less sudden and numerous than in other portions of the river.

After leaving the Rampart Range the river widens again and diminishes in velocity. The right bank is generally hilly and abrupt, and on the left, though the shore is generally low or flat, the hills and bluffs occasionally approach the water's edge. The average width of the channel is about three-fourths of a mile, but occasionally groups of low islands cause a widening of the river. About 50 miles below the Nuklukaiet station a range of mountains appears on the right bank. This is a succession of well-defined peaks and ridges, describing a beautiful

curve of many miles, with its concavity toward the river and its flanks resting upon the water's edge. All this bank is well timbered with spruce, poplar, and birch. The principal tributaries emptying into this section of the river are as follows: From the north the Tozikakat, the Novikakat, the Melozikakat, and the Koyukuk, and from the south the Tennanah and a few smallar streams. The most important among these tributaries in size and beauty—in fact, chief among all the tributaries of the Yukon—is the Tennanah, the river of the mountains. It empties into the Yukon about 30 miles below the Ramparts, and its turbid waters increase the current of the main river for a long distance. It flows apparently in a generally northwestern direction, its headwaters approaching the upper Yukon within five or six days' "Indian" travel. The mountains overhanging its upper course are said to be steep and to contain auriferous deposits or veins; and samples of surface gold from this section have been exhibited. At the mouth of the Tennanah is the great trading ground called Nuklukaiet, where the Indians inhabiting the banks of this tributary are accustomed to congregate in the spring and meet the white traders and the few scattered bands of natives roaming over the hunting grounds between the Yukon and the Kuskokvim. Not far east of Nulato the Koyukuk empties into the Yukon from the north, forming a route of traffic between the river and Kotzebue Sound. From Nulato, situated some 50 miles south of the mission, to Andreievsky, the distance is about 350 miles, and the river has the following approximate directions: From Nulato to Anvik, south-southwest; from Anvik to the upper entrance of Chageluk Slough, south southeast; from the upper entrance of the slough to the great bend, southwest; from the great bend to Andreievsky, west by south. It is difficult to convey an idea of this portion of the river, as its numerous windings, its hundreds of islands, its bars and shoals, ever changing and shifting, baffle the traveler in his search for a navigable channel. Generally speaking, the right bank is high, exhibiting many bluffs of sand and rock, much eroded by the ice torrents of the spring. The ice sometimes undermines the high banks to a distance of 20 or 30 feet, and the trees standing on the projecting tops of the banks are loosened by the action of frost and water and precipitated into the stream beneath, and thus the river goes on widening and shoaling, and floating immense quantities of driftwood down to the sea. Sometimes the right bank rises into high hills, but the left bank is generally low and level; here and there, however, a few isolated hills are seen standing back a mile or two from the water, and for nearly the whole distance a range of distant mountains parallel to the left shore is visible. In these mountains lie the upper branches of the great river Kuskokvim.

Sandstone and slate continue throughout this portion of the Yukon Valley, but on the lower part a dark volcanic rock makes its appearance. Between a point near Andreievsky and the sea no rocks can be found anywhere along the river. The hills on the right bank are generally well covered with spruce and poplar, occasionally intermingled with a little birch, but owing to the coldness of the winter these trees seldom grow to great size. The left bank, on the other hand, is generally covered with a low thicket of willow and alder. This section of the river has few tributaries of importance, but there are many small streams, entering usually from the north. The principal streams are the Takaiak, which empties into the Yukon about 50 miles below Nulato, and the Anvik, debouching from the north about 160 miles below that point. The latter has its source in the mountain

ranges which run parallel with the seacoast; its banks are high and steep, and the very shallow waters run with great velocity. Two rivers empty into the Yukon in this vicinity from the south—the Kaiukak River, about 40 miles below Nulato, and the Chageluk. About 130 miles below Nulato the Yukon separates into two branches, the main stream pursuing a southerly course, while the lesser branch, running at first a little south of east, makes finally a great bend to the south and west and enters the main river again about 60 miles below the point of separation. This lesser branch is called Chageluk Slough, and into it, a few miles from its entrance, empties the Chageluk, or Innoko, River. A little below Andreievsky the Yukon bends abruptly to the north and runs about north by west from this point to the sea. The three principal outlets of the great river are the Ap-hun, or upper, the Kvikhpak, or middle, and the Kusilvak, or lower, mouth. The Ap-hun outlet is about 40 miles in length and has an average width of perhaps one-third of a mile.

Of the upper portion of the Kuskokvim River I have no authentic reports, but the natives relate that along its several branches the country is a level plain encircled on all sides by tremendous mountains. All through its upper course the current is said to be exceedingly sluggish, but at some point east of the last known settlement of Napaimute there must be a break through some natural barrier, causing a rapid descent and corresponding increase of velocity of the river. From this point to the great bend in the vicinity of Kaltkhagamute the Kuskokvim runs nearly due west.

The mountains eastward of the Rédoute Kalmakovsky are high, heavily timbered around the base, and give ample evidence of the presence of mineral deposits, veins of quartz, cinnabar, and other ores being easily traced wherever the slopes and bluffs are exposed to view. Throughout the whole valley of the river the observer is struck with the wide difference existing between this formation and that of the Yukon. The bed is hard and gravelly throughout and the vegetation on its banks more profuse and of greater variety than we find it on the larger river. About 200 miles from its mouth the Kuskokvim makes a bend to the southward, and from this point the hills disappear gradually, and at the same time the forests of alder and spruce recede from the banks until for the last 150 miles of the river course endless marshy plains extend on both sides as far as the eye can see. Between the Yukon and the Kuskokvim, west of the general portage route, there is a vast system of lakes connected by streams with both rivers, but of this region very little is known beyond the fact that it is thickly settled by people holding little intercourse with their neighbors inhabiting the river basins.

Turning now to the islands of western Alaska, we begin with the Kadiak group, consisting, in addition to the large island from which it takes its name, of the islands of Shuiak, Afognak, Malina, Marmot, Spruce, Ougak, Satkhlidak, Nazikak, Sitkhinak, Tugidak, and Ouganik, besides a number of others too small to mention by name. All of these islands are covered with mountains and hills, a few of them looming up between 2,000 and 3,000 feet into the regions of eternal snow. From the northern extremity of Shuiak to a line from the head of Ougak Bay, or Eagle Harbor, to Ouganik Bay, on the west coast, the islands are heavily timbered with spruce, attaining in some localities a large size. This timber line is quite sharply defined, though along the water courses throughout the group a stunted growth of creeping wil-

low exists, and a heavy carpet of grasses and moss covers the hills and mountains to the very summits. The geological formation consists chiefly of slate, porphyry, and basalt.

The bays indenting this group of islands are numerous and deep, affording the greatest facility for small fishing and trading craft. The most important at the present day is that of St. Paul Harbor, on the northern side of the Gulf of Chiniak, protected from the sea by Long and Wood islands. A short distance south of Chiniak Bay is Eagle Harbor, or Ougak Bay, connected by a series of lakes with another deep fiord still farther south, the Bay of Killuda. This harbor is again connected, by a sheltered passage between the islands of Kadiak and Satkhlidak, with the harbor, or bay, of Three Saints, where the first permanent settlement of the Russians on Kadiak was located. Next in order is the Bay of Kaguiak, a capacious basin sheltered from all but north winds. Passing around the southern end of Kadiak Island we come to the large Bay of Alitak, whence westward and northward a long reach of rocky coast extends without indentation or harbor of any kind until we pass the great fishing station of Karluk River and enter the Bay of Ooiak, the deepest fiord on the island, divided from the Bay of Killuda on the eastern side by only a narrow range of hills. To the northward of this bay there is one other indentation on Kadiak Island, the Bay of Ouganik, divided into two arms by the island of the same name, and one large bay on the west side of Afognak Island, named Paramonof Bay. With the exception of Spruce and Wood islands the smaller islands of this group are uninhabited and serve only as hunting grounds for the inhabitants of Kadiak and Afognak.

Southward from the Kadiak Archipelago are the Semidi group and the Island of Ookanok (also called Chirikof Island). They are hilly and evidently of volcanic origin, earthquake shocks being still of frequent occurrence. In the autumn of the year 1880, when the inhabitants of Sitka, 600 miles to the eastward, were startled by a violent earthquake, similar phenomena were observed on these islands, while no subterranean movement was felt at Kadiak and the adjoining islands.

The next large group of islands is the Shumagin, consisting of the islands of Ounga (the most important of the group), Popof, Korovin, Andromika, Nagai, Great Koniusha, Little Koniusha, Simeonof, Nuniak, and a number of small rocky islets. This group, which received its name from Bering during his second voyage, bears indications of volcanic origin, great changes in the elevation of points and headlands having taken place within historic times. In geological formation they are nearly all alike, consisting of slate and porphyry, but on Ounga Island are extensive veins of bituminous coal. The product of these veins has, however, been declared unfit for steaming or manufacturing purposes, and after expensive experiments, continued through a long series of years, the mines have been finally abandoned. The most important codfish banks now utilized by San Francisco fishermen in Alaska are located in the immediate vicinity of the Shumagin group. Between the Shumagin Islands and Oonimak, the first of the Aleutian group, the sea is dotted with a multitude of islands, reefs, and rocks of volcanic origin too numerous to describe in detail; they form the most important sea-otter hunting ground of all Alaska, extending from Peregrebnoi Island in the north to Sannakh in the south.

The island of Oonimak is about 60 miles in length, extending from northeast to southwest, closely resembling in its general formation the Aliaska Peninsula, from which it is separated only by a shallow strait. The most prominent features of this island are its two volcanic peaks,

the Shishaldin, rising in one elegant pyramid to a height of between 8,000 and 9,000 feet, and the Pogromny, between 5,000 and 6,000 feet in height. The whole island has been described as the vault of a subterranean smelting furnace with many chimneys, through which flames, sparks, and ashes ascend from the molten masses beneath. It has been and is still the theater of the most constant volcanic action in all Alaska. In the earliest times since the discovery of the island by the Russians whole ridges of mountain peaks have been observed to split open and emit huge flames, torrents of lava, and clouds of ashes. These manifestations were always accompanied by the most violent earthquakes, tidal wáves, and floods, the latter caused by the sudden melting of masses of ice and snow on the mountain tops. The greatest activity on record occurred in 1796, 1824, and 1825, and as late as 1827 burning lava was observed descending from the craters. Oonimak has also from time immemorial been the Aleutians' great storehouse, from which they obtain sulphur and obsidian, the latter being employed in the manufacture of knives, spears, and arrowheads. The Russian missionary Veniaminof, who witnessed one of these eruptions in the year 1825, describes the event as follows:

On the 10th of March, 1825, after a prolonged subterranean noise, resembling a heavy cannonade, which was plainly heard on the islands of Unalaska, Akoon, and the southern end of the Aliaska Peninsula, a low ridge on the northeast end of Ounimak opened in five places with violent emissions of flames and great masses of black ashes, covering the country for miles around. The ice and snow on the mountain tops melted and descended in a terrific torrent 5 to 10 miles in width on the eastern side of the island. Until late in the autumn the sea on that coast was turbid after this eruption. The Shishaldin crater, which up to that time had also emitted flames, continued to smoke only, while about midway between summit and base a new crater was formed, which was still smoking in the year 1831. On the 11th of October, 1826, a small peak in the interior of the island opened under violent explosion of fire and a rain of ashes, which covered not only the southern end of Aliaska Peninsula, but Sannakh and Ounga and other adjoining islands. Since that time smoke comes out of many places among the loose masses of rocks on the mountain side, and all the streams and ponds in the vicinity are hot enough to emit steam in midsummer.

Between Oonimak and Unalaska there is a group of islands which was formerly named the Krenitzin group. The most important of this group are Avatanok, Tigalda, Ougamak, Akoon, Akutan, and Ounalga. The latter island has no high mountains, but is very rocky, and its coast consists of steep, almost inaccessible cliffs. The island of Akutan is nearly circular in form, and has a group of mountains culminating in a volcanic peak 3,300 feet in height. Smoke still issues occasionally from the crater, the inner side of which is lined with deposits of sulphur of great purity, and many hot springs emerge from the fissures and crevices, in one of which the temperature is sufficiently high to boil meat and fish. The island of Akoon is comparatively low, but smoke can be seen to ascend from one of its peaks. The natives report deposits of coal in the southeast side of the island, and Tigalda, high and rocky at its south end and level in the north, also exhibits a carboniferous formation.

The great island of Unalaska, the most important of the Aleutian chain, is about 120 miles long and 40 miles wide. Three separate groups of mountains occupy the coast and interior: The Makushin group, consisting of two parallel chains running northwest and southeast, between the bay of Makushin and Captains Harbor, with the volcanic peak Makushin 4,000 or 5,000 feet in height; the Bobrovoi or Otter Mountain, extending from northeast to southwest, between Captains Harbor and Beaver Bay, and the Koshigin Mountains, extending

through the southern portion of the island from northeast to southwest. The snow never leaves the summits of these mountains.

The volcano of Makushin lies about 20 miles north of the anchorage in Captains Harbor, and is an almost perfect cone in shape, blunted a little at its apex, where the crater is located. No flames or lava have been emitted by this volcano in the memory of several generations; but smoke still issues at brief intervals, and earthquakes and subterranean noises are of frequent occurrence. Russian naval officers who visited the island at long intervals in the early part of this century assert most positively that many of the points and ridges changed entirely in outline owing to this volcanic action. A lake near Vessleovsky Cape, at the west entrance to Captains Harbor, was by Veniaminof described as a lagoon connected with the sea, but at the present day it is separated from the latter by quite a wide strip of rocky land.

The geological formation of Unalaska consists chiefly of granite, basalt, porphyry, and slate in alternate layers, and a few hot springs are found at various points on the island.

Three vast bays indent the shores of Unalaska Island. One opening to the northward—Captains Harbor—is divided into two branches by the island of Amaknak, and is the site of the principal settlement of Iliuliuk. Another bay, the largest in size on the island, opens into the Pacific in a northeastern direction; this is Bobrovoi or Sea Otter Bay, nearly 30 miles in length. A narrow isthmus separates this gulf from the bay of Makushin, opening westward into Bering Sea. The whole south coast of the island is cut up into deep fiords, but as they are open to all southerly and easterly winds they afford no anchorage for shipping, with the exception, perhaps, of the small bay of Kiliuliuk, whence a portage route leads across to the Bay of Kashiga, debouching into Oumnak Strait. An excellent harbor opening into the same passage is the Bay of Chernovsky, near the southwestern extremity of the island.

Separated from Unalaska by a pass only 5 miles in width is the Island of Oumnak, nearly 60 miles in length but not over 10 miles wide at any point. The southern extremity of this island is low, rolling prairie land, rising gradually into a chain of mountains crowned with snow-covered summits, two of which are active volcanoes. The southernmost of these is situated a short distance northward of the present settlement. The larger and more important is the Vsevidof, which rears its head nearly in the middle of the island, just south of Inanudakh Bay. Another extinct crater is located near the north end of Oumnak Island, and bears the name of Tulik. Earthquakes and rumbling noises are of frequent occurrence here, and as late as the year 1878 a new crater, emitting steam and boiling mud, after a brief eruption of flames and ashes, appeared in the sloping plain between the southern volcano and the settlement. The whole coast of the island is beset with rocks to such an extent that it is shunned by the navigators. The eruptions of ashes and rocks from the active craters frequently fill up the creeks and mountain streams and seriously interfere with the periodical runs of salmon and other fish. These disturbances also affect the neighboring coast of Unalaska, and at the present day only one out of eleven populous villages noted by the earlier visitors is in existence. On the northeastern side of the Vsevidof crater a geyser has been observed, in which the water rises every fifteen minutes to a height of about two feet, the temperature being sufficient to boil meat or fish, but the stream rises out of a gravel deposit and disappears without leaving any trace of opening or funnel behind. The natives

report a large number of hot springs in various portions of the island. The general formation of the mountain seems to be porphyry and granite, intersected with large masses of obsidian.

To the northward of Oumnak, at a distance of between 10 and 12 miles, lies the small rocky island of Bogoslov (St. John the Theologian). This island or crater appeared above the waters of Bering Sea within historic times. On the 18th of May, 1796, a Russian trader named Krukof found himself on the north end of Oumnak Island; the weather was thick and stormy, and there were many indications of volcanic disturbance, but on the following morning the atmosphere cleared and a column of smoke became visible some distance at sea. Toward evening a black object appeared under the smoke, and during the night large flames of such brilliancy rose up from the same point that on the island night was converted into day, and at the same time an earthquake with thundering noises shook the whole island, while rocks were occasionally thrown across the sea from the new crater. With sunrise of the third day the earthquake ceased, the flames went down, and the newly created island loomed up in the shape of a cone. A month later Krukof found the peak considerably higher, still emitting fire and ashes; later, however, the flames ceased altogether, and volcanic action was confined to the emission of steam and smoke. Four years later, in 1800, the smoke had ceased, and when eight years had elapsed since the first appearance of the island some hunters visited its shore, and at that time the sea immediately surrounding it was still warm and the rocks too hot to permit of landing, but a few years later the cliffs of Bogoslov had cooled sufficiently to attract a large number of sea lions. From the time of its first appearance until 1823 successive visitors reported an increase of both height and circumference, but from that date no further elevation seems to have taken place.

The next group of islands to the westward bears the common name of Four Peaks Islands, and consists of Ouliaga, Kigalgin, Kagamil, Chuginadak, and Unaska, and a few smaller rocky islets. On nearly all these islets we find craters which are or have been active within historic times, and smoke still issues from those on Unaska, Kagamil, and Amukhta. Earthquakes are frequent, and deposits of lava, ashes, obsidian, and other volcanic products abound everywhere. But one of the islands, Chuginadak, affords an anchorage for shipping, and consequently the group is rarely visited except by sea otter hunters. In former years many villages existed here, and in cavities of the island of Kagamil a large collection of mummies, in a very good state of preservation, has been discovered.

The Andreianovsky group of islands, named after its discoverer, the Russian trader, Andreian Tolstykh, consists of fourteen or fifteen large islands and a number of small ones. The easternmost of these is Siguam, nearly circular in shape, mountainous throughout, with several smoking craters, without harbors, and uninhabited. Southwest of Siguam lies the island of Amlia, extending from east to west about 30 miles, but only 2 or 3 miles in width. A long chain of conical peaks traverses the whole length of the island, but no active craters are known to exist. A few streams empty into the Pacific in the south and into Bering Sea in the north, but only one small anchorage exists on the south coast. At the time of its first discovery Amlia contained several villages, but they have long since been abandoned.

The largest of this group is the island of Atkha. It resembles Unalaska in shape, but its indentations are less deep and not so easily accessible. Near the north point of the island there is a volcano called

the Korovinsky, nearly 5,000 feet in height, and a few miles to the south another rises to almost the same elevation, the Kliutcheva (or Springs volcano), and the third, somewhat less in height, though also covered with eternal snow, is situated near the northeastern extremity of the island, and was named Sarychef. A few smaller volcanoes are scattered along the gradually descending mountain range forming the backbone of the island. The northernmost only of these craters is active at the present day, emitting smoke and ashes, but earthquakes and subterranean noises are felt and heard all over the island. The largest indentation of Atkha is on the west side, in the bay of Korovinsky, on the shores of which the principal settlement was formerly located. The old establishment was removed, however, to Nazan Bay, nearly opposite, on the east coast of the island. In neither of these bays was the anchorage very desirable, one being exposed to westerly, the other to easterly winds. About midway on the west coast is a sheltered harbor, Banner Bay, extending some 5 or 6 miles inland, and separated from a corresponding opening on the eastern coast by a low, narrow isthmus. The mountains in the northern part of Atkha exhibit the only glacial formation known to exist on these islands west of Oonimak. Hot springs are plentiful throughout the interior, and at two or three points the natives report mud craters throwing up liquid masses varying in color from red to green, blue, and a brilliant yellow.

Of the small islands adjoining Atkha in the west but little is known beyond the fact that they are mountainous, uninhabited, and evidently of volcanic origin. The nearest large island is that of Sitkhin, which is round in shape and mountainous, culminating in a snow-covered peak 5,000 feet in height, which was reported by Sarychef as emitting flames in the year 1792, but at present no volcanic action is observed beyond hot springs emerging from the rocks in many places.

To the westward of Sitkhin rises the large island of Adakh, covered with mountains and indented with several bays, of which, however, only two, Kiliuliuk Bay on the west and Shagakh on the east, afford anchorage to vessels. One grand peak rising up nearly in the center of the island was called the "white crater" by the Russians, but at present it seems to be extinct; hot springs abound, however, throughout the mountains and valleys of the island.

The islands of Kanaga and Tanaga, in the vicinity of Adakh in the west, also exhibit a succession of volcanic peaks rising abruptly from the sea, a few of them still smoking and grumbling. Only on Tànaga Island is there an anchorage, on its western shore, in the Bay of Slava Rossia.

The small island of Anangussikh, or Goreloi, is situated due west of Tanaga, and consists of one immense peak rising abruptly from the sea, with a circumference of about 18 miles. Several of the Russian explorers estimated the height of this peak greater than that of Shishaldin, or more than 9,000 feet, but no recent measurements to confirm this statement have been made.

Throughout the whole group of the Andreianovsky Islands, Atkha contains the only settlement, all the other islands, though once populous, now serving only as temporary hunting grounds.

The next group of islands to the westward, named by the Russians the Rat Islands, consist of a mass of small volcanic peaks, with the exception of two of somewhat larger dimensions—the islands of Amchitka and Kyshka. Hot springs are found on nearly every island of the group, but smoking craters exist only on Semiseisopochnoi, of Seven Peak Islands, and on Sitkhin, the latter being probably the

westernmost active volcano of the Aleutian chain. The only anchorages to be found in this whole group are on the west coasts of Kyshka and Amchitka, respectively.

The last subdivision of the Aleutian chain was classed by the Russians as a separate group (the Near Islands), and consists of the islands of Attoo and Agatoo, the latter situated a short distance southeast of the former. The formation of these two islands seems to be very similar to those to the eastward, but no volcanic phenomena have been observed here within historic times. On the northeastern coast of Attoo the only settlement is situated on the small sheltered bay of Chichagof, but another anchorage, called Massacre Bay, exists on the south coast. The island of Agatoo has long since been abandoned by its inhabitants, and affords no shelter to sailing craft.

THE VOLCANIC REGION OF ALASKA.

As the best authority extant on the volcanic manifestations in Alaska I use a translation of Dr. C. Grewingk's "Treatise on the volcanic character of certain regions of the Russian possessions," published in the year 1850, in the Proceedings of the Mineralogical Society in St. Petersburg. Grewingk writes as follows:

We know of no more extensive theater of volcanic activity than the Aleutian Islands, the Aliaska Peninsula, and the west coast of Cooks Inlet. Here we have confined within the limits of a single century all the known phenonema of this kind: the elevation of mountain chains and islands, the sinking of extensive tracts of the earth's surface, earthquakes, eruptions of lava, ashes, and mud, the hot springs, and exhalations of steam and sulphuric gases. Not only does the geological formation of most of the islands and a portion of the continent point to volcanic origin or elevation, but we have definite information of volcanic activity on 25 of the Aleutian Islands. On these islands 48 craters have been enumerated by Veniaminof and other conscientious observers, and in addition to these we have on the Aliaska Peninsula 4 volcanoes, 2 on Cooks Inlet, 1 on Prince William Sound, 1 on Copper River, and 1 in the vicinity of Sitka (Mount Edgecombe); 3 other peaks situated between Edgecombe and the Copper River have not been definitely ascertained to be volcanic. The distance from the Wrangell volcano, in the vicinity of Copper River, to the Sitkhan Island is 1,505 nautical miles. We have every reason to believe that the Near Islands (the westernmost of the Aleutian group) are also extinct craters; and thus we find one continuous chain of volcanoes from Wrangell to the near Commander Islands (Bering and Copper), pointing to the existence of a subterranean channel of lava finding its outlet or breathing hole through the craters of this region. The nearest volcanoes to the south of this line are Mount Baker on the American continent, in latitude 48° 48′, and the craters of the Kurile chain of islands on the coast of Asia. That a subterranean connection exists between this long line of craters is indicated by the fact that whenever volcanic activity grows slack in one section of the chain it increases in violence at some other point, an observation which has been confirmed by all observers. From all information on the subject at our disposal it appears that the craters of Mounts Fairweather, Cryllon, and Edgecombe, and Mount Calder (Prince of Wales Island) have not been active since the middle of the last century, and as the universal law of volcanic activity seems to place the frequency of eruptions in an inverse ratio to the height of the volcanoes, we might reasonably expect that the season of rest for these craters will be a prolonged one; but how terrible and devastating must be the awakening of the sleeping furnaces when it occurs! With regard to Mount St. Elias, we have many authentic data as to its volcanic nature. Belcher and Wrangell consider that the black ridges descending from the summits of the mountains, and the fact that the glaciers on Copper River exhibit a covering of vegetation, as proof of the volcanic character of the mountain. The first phenomena may rest entirely upon an optic delusion, as it is not at all certain that the black streaks consist of lava or ashes, while the appearance of vegetation on the surface of glaciers on Copper River is very probably due to the fall of volcanic ashes. The latter phenomenon may be traced as easily and with far more probability to the Wrangell volcano.

With a feeling of relief we abandon this field of speculation and enter upon a review of the volcanic phenomena of these regions in geographical as well as chronological order. All the editions upon which our list is founded came from the reports

of the accidental visits of European travelers and explorers. Owing to the low grades of civilization of the natives, and even of the colonists, it has been exceedingly difficult to collect the necessary information from inhabitants of the country; but such as it is I have made use of all material accessible to me. We first review the volcanic manifestations, as far as known, in geographical order.

On Prince of Wales Island, Mount Calder, located in latitude 56° 15′ and longitude 133° 30′, was active (?) in the year 1775, according to Don Antonio Maurelle; not active in 1793, according to Vancouver, and reported in the same condition by all later observers. On Baranof Island we have hot springs, situated in latitude 56° 51′ and longitude 135° 19′, which were reported flowing by Baranof in 1779, and have remained in the same condition. On the mainland we have Mount Cryllon, in latitude 58° 45′ and longitude 137°, reported not active by Cook in 1778. Mount Fairweather, in latitude 59°, longitude 137° 30′, reported not active by La Pérouse in the years 17*6 to 1788; Mount St. Elias, in latitude 60° 17′, longitude 140° 51′, reported not active by Vancouver in 1794, and continued in the same condition. The coast crater on Prince William Sound (?), in latitude 60° 54′, reported in eruption by Don Fidalgo; Mount Wrangell, in latitude 62° and longitude 142°, discovered in 1819, and reported active by Kliwosky and Wrangell. The high peak or Rédoute Mountain, latitude 60° 30′, longitude 152° 45′ (west coast of Cooks Inlet), reported smoking since 1819 by Wrangell and others. Mount Ilyamna, latitude 60°, longitude 153° 15′, reported not active by Bering in 1741 (?) and active by Cook in 1778; also by Don Artsaga in 1779; also in 1768 by Portlock and Dixon, and in 1793 by Vancouver, and also by all later observers, and still continues the same. On the Aliaska Peninsula the Veniaminof crater, latitude 56°, longitude 158°, reported smoking by Veniaminof from 1830 to 1840; hot springs in the same vicinity reported flowing by Veniaminof at the same time, and continue in the same condition; Pavlovsky crater, in latitude 55° 24′ and longitude 161° 48′, reported active from 1762 to 1768 by the promyshleniks. According to Chamisso, one of its craters became extinct in 1786, reported active by Sarychef in 1790, also by all later observers, and is still smoking. The craters of Medvednikof and Morshova, in latitude 55° and longitude 162° 37′, reported not active in 1768 and 1769 by Krenitzin, but active in 1790 by Sarychef, now smoking occasionally; hot springs at the entrance of Morshova Bay, in latitude 54° 34′ and longitude 152° 25′, were reported flowing in 1832 by Lütke. Hot springs on the peninsula, in latitude 55°, longitude 163° 10′, were reported by Veniaminof as flowing in 1838; hot springs on Moller Bay, latitude 55° 45′, longitude 160° 30′, were reported flowing in 1828 by Lütke and in 1840 by Veniaminof, and still continue in the same condition. The volcanic island of Amnak, latitude 55° 26′, longitude 163° 15′, was active during the last century, but not active since 1804, according to Krusenstern. On Oonimak Island the volcano Khaginak, in latitude (?), has not been active within historic times, though Veniaminof, from native accounts, computed that its crater was formed in the year 1690.

Of the two other volcanoes on this island, Shishaldin, in latitude 54° 45′, longitude 164°, and Pogromny, latitude 54° 30′ and longitude 164° 45′, we have the following data:

In the years 1775 to 1778 the Shishaldin was reported as occasionally active by Zaïkof; in 1778 Shishaldin was reported smoking by Cook, and in 1790 by Sauer; it was also reported smoking in 1824 by Veniaminof, and as in full eruption in 1825; in 1826 a new eruption was reported by Veniaminof and also increased activity from 1827 to 1829, and from 1830 to 1831. Pogromny had its greatest activity in the year 1795, and another violent eruption in 1827, and in the autumn of 1830. Both are still smoking.

In the Island of Akoon a crater, situated in latitude 54° 17′, longitude 165° 33′, was reported by the promyshleniks as not active between 1765 and 1770; in the year 1828 Veniaminof reported it smoking. Hot springs were reported flowing in 1828 and still continue in the same condition. The crater on Akutan Island, latitude 50°, longitude 165° 54′, was reported not active in 1778 by Cook, and also by Shelikhof in 1785; it was reported smoking by Sauer and Sarychef in 1790; also by Veniaminof and later observers. On Unalaska Island the Makushin crater, in latitude 53° 52′, longitude 166° 48′, was reported active by Krenitzin in 1768, not active by Cook in 1778, extinct by Sauer in 1790 and 1792, smoking by Sarychef in the same year. In 1802 an eruption, accompanied with earthquake, was reported by Langsdorff; in 1816 and 1817 Eschholz reported it as not active; in 1820 Veniaminof reports earthquakes, and in 1826 an eruption; later observers reported it still smoking. On Oumnak Island the promyshleniks reported no volcanic phenomena between 1765 and 1770; in 1784 the Vsevidof crater was still smoking; in 1790 it was reported smoking by Sarychef. From 1817 to 1820 violent eruptions and earthquakes took place throughout the whole Oumnak range. In 1824 and in 1830 other eruptions were reported by Lütke and Postels. The volcanic island of Bogoslov rose from the sea in 1796 with earthquake and eruptions; reported as not smoking in 1800 by Kotzebue; also in 1802 by Langsdorff; reported smoking in 1804 by Kotzebue; in eruption in 1806 by

Langsdorff; throwing up stones in 1814 by Baranof; decreasing in height in 1815, also by Baranof; not active in 1816 and 1817, according to Eschholz, and smoking again in 1820, according to Dr. Stein; reported by Veniaminof as no longer smoking since 1823. The volcano on Kagamil Island, in latitude 52° 53′, longitude 169° 30′, was reported to have been active by Lütke and Postels. In 1828 Veniaminof reported only hot springs, an exhalation of gases, and subterranean noises. On the Island of Tanaga, in latitude 53°, longitude 169° 45′, the volcano is reported not active by Bragin in 1774; in 1828 Lütke reported it active, with many hot springs at its base. The volcanoes of Ouliagan and Chegulakh, in latitude 52° 53′ and longitude 169° 40′, and latitude 53° 08′, longitude 169° 24′, respectively, have not been active since the end of the eighteenth century. The volcano of Unaska, latitude 52° 40′, longitude 170° 28′, was reported smoking in April, 1817, by Choris; in eruption in 1824 by Lütke, and in 1830 by Veniaminof. The volcano of Amukhta, in latitude 52° 30′, longitude 171° 04′, reported in full eruption in June, 1786, by Shelikhof and in 1790 by Sarychef; in 1830 it was reported not active by Lütke, but smoking by later observers. The volcano of Siguam, in latitude 52° 20′, longitude 172° 12′, with mud craters and hot springs, was reported active by Sarychef in 1790, and smoking by Lütke in 1827; also by later observers. The five craters on the Island of Atkha were reported active from time to time since 1760 by Zaïkof, Tolstykh, Lütke, and others. The Sarychef crater was considered extinct since 1792, but broke out again in 1812, according to Vassiler. The Korovinsky crater was in eruption and smoking in 1829 and 1830. The Konik Peak was reported smoking in 1827 by Lütke; in 1829 by Ingenström; also by later observers.

The volcano on Sitkhan Island, latitude 52° 04′, longitude 167° 02′, was reported not active by Tolstykh in 1760, in eruption by Sarychef in 1792, covered with snow and smoking by Ingenström in 1829, also by later observers. The White volcano, on Adakh, in latitude 52° 45′, longitude 176° 30′, was reported active in 1760 by Tolstykh; also in 1784 by Shelikhof; and in 1790 and 1791 by Sauer and Sarychef. The volcano of Kanaga, latitude 52°, longitude 176° 50′, was reported active, with many hot springs at its base, by Tolstykh in 1763, also by Shelikhof in 1768; smoking in 1790 and 1791 by Sarychef, and in 1827 by Lütke, and by later observers. The crater on Tanaga, in latitude 52°, longitude 178°, was reported active from 1763 to 1770 by promyshlenika, and smoking by Sauer in 1791, and by later observers. The volcano on Goreloi, latitude 51° 43′, longitude 78° 45′, was reported active in 1760 by Zaïkof, in eruption by Sarychef in 1792, smoking by Ingenström in 1829. The volcano of Semiseisopochnoi, latitude 52°, longitude 180° 15′, reported smoking in 1772 by Bragin; also by Sarychef in 1790 and 1792; by Lütke in 1830, and by later observers. The volcano of Sitignak, latitude 51° 39′, longitude 181° 33′, was reported active by Bragin in 1776; and finally the crater of Sitkhan, in latitude 52° and longitude 181° 30′, reported smoking by Lütke in 1828.

CHRONOLOGICAL REVIEW OF VOLCANIC PHENOMENA ON THE ALEUTIAN ISLANDS AND THE NORTHWEST COAST OF AMERICA FROM THE YEAR 1690.

Formation of the crater on the highest peak of Oonimak Island east of the Shishaldin, probably the Khaginak.

1700 to 710.—Volcanic activity on the Ouliagan, Chegulakh, and Amnak.

1741.—Iyiamna Mountain not active. (?)

1760.—Adakh, Goreloi, Chechina, and Atkha smoking; Koniushy Island rising.

1762.—Pavlovsky volcano, on Aliaska Peninsula, active.

1763.—Volcano on Tanaga active (until 1770).

1768.—The Makushin and another volcano on Unalaska active; also the Medvednikof and Morshova on the peninsula.

1770.—Amukhton, active.

1772.—Semiseisopochnoi smoking.

1774.—The volcano on Tannakh-Angunakh active.

1775.—Mount Calder and other peaks on Prince of Wales Island active; also one crater on Oonimak Island intermittent.

1776.—The volcano on Sitignak in eruption.

1778.—Ilyamna volcano active, and Shishaldin smoking.

1784.—Vsevidof, on Oumnak Island, smoking; also the Chechina.

1786.—The volcano on Kanaga in eruption; Pavlosvky crater active; Siguam and Amukhta active, the former until 1790, the latter until 1791.

1788.—No volcanic phenomena reported, but on the 27th of July a flood submerged the islands of Sannakh and Ounga and a portion of the peninsula (evidently a tidal wave owing to earthquake).

1790.—Akutan peak smoking; also Vsevidof, on Oumnak, the Kanaga, and Semiseisopochnoi. The Makushin, on Unalaska, active from 1790 to 1792; and the Shishaldin from 1790 to 1825 (intermittent). Eruption reported on Prince William Sound, in latitude 60° 54′. (?)

1791.—The peaks of Tanaga and Kanaga smoking.
1792.—The peaks of Sitkhin and Goreloi in eruption in May; Semiseisopochnoi smoking in June.
1795.—Eruptions in southwest end of Oonimak, while a crater on the north side becomes extinct.
1796.—Appearance of Bogoslov Island; Edgecombe active. (?)
1796 to 1800.—Craters on the Four Peak Islands active; also Amnak Island.
1800 to 1815.—Bogoslov rising, but not smoking.
1802.—Makushin in violent eruption—earthquakes; Bogoslov not active.
1812.—Sarychef Peak, on Atkha, very active after a long repose.
1817.—An eruption on the north end of Oumnak with a flow of ashes and earthquake; Unaska smoking.
1818.—Makushin, on Unalaska, shaking; subterranean disturbances on Amnak.
1819.—Mount Wrangell in eruption; the Rédoute volcano smoking.
1820.—Bogoslov smoking.
1824.—Shishaldin in violent eruption from 1824 to 1825; Unaska in violent eruption after a long repose.
1825.—Eruptions on the northeast side of Oonimak.
1826.—Eruptions and fall of ashes on the south end of Oonimak; the Makushin, on Unalaska, smoking and shaking.
1827.—The Shishaldin and the Pogromny, on Oonimak, in eruption from 1827 to 1829. The peaks on Koniushy and Kanaga smoking. In June, earthquake on Copper Island.
1828.—The peaks of Sitkhin, Akoon, Akutan, Tannakh-Angunakh, Atkha, Koniushy, Goreloi, on Oonimak, smoking.
1829.—Shishaldin smoking; also Sitkhin, Goreloi, Tanaga, Kanaga, and Atkha smoking.
1830 to 1831.—Shishaldin in violent eruption; also an eruption on southwest end of Oumnak and on Unaska; the Korovinsky, on Atkha Island, smoking.
1836.—Earthquake on islands of St. Paul and St. George.
1838.—Shishaldin in eruption, and three other peaks on Oonimak Island smoking; the Tannakh-Augunakh, the Makushin, on Unalaska, the Akutan, the Pavlovsky crater, and another peak on Aliaska Peninsula, smoking.
1844.—The Korovinsky crater, on Atkha, and the Makushin smoking.

From this review, however incomplete, it would appear that the volcanic activity of the Aleutian Islands and the Aliaska Peninsula has been decreasing since the discovery of those regions by the Russians. When we consider the three classes of manifestations of volcanic activity—that is, eruption, the reduction of sulphuric deposits, and total inactivity—and apply them to the islands mentioned, we find that in the year 1830 twelve of the islands produced sulphuric deposits, eight islands were in a state of total inactivity, and five (Unaska, Tannakh-Angunakh, Oumnak, Unalaska, and Oonimak) were in a state of perceptible, though not always violent, uninterrupted activity.

It is also clear to the observer that certain relations exist between the alternate repose and activity at various points along the northern volcanic belt now under consideration. According to the earliest accounts of Tolstykh, Bragin, Zaïkhof, Shelikhof, Cook, Sauer, Vancouver, and others, the islands of Sitignak, Kanaga, Amukhta, Kigamil, Bogoslov, Unalaska, Oonimak, and the volcanoes of the peninsula and the Ilyamna, were from the middle to the end of the last century in a state of alternate but generally decreasing activity, while the center of volcanic action apparently advanced from west to east. On Kamchatka, where from 1727 to 1731 the Kluchev was in constant eruption, and in 1737 and 1739 violent eruptions took place from the Avatcha and another volcanic peak, we find only two violent eruptions during the second half of the eighteenth century (of the Kluchev in 1762 and 1767, and of the Avatcha in 1773 and 1796). In 1820 the furnaces of Unaska, Oumnak, and Oonimak evinced renewed activity, while at the same time Mount Wrangell was in eruption. When, however, after this period, the volcanic manifestations on these islands began to decrease, the Kamchatka peaks once more opened their craters with increased violence in the years 1827 and 1829. Of late (1849) we have received no reports of volcanic phenomena on the Aleutian Islands, but the Kamchatka craters are once more in eruption since 1848.

These data, vague as they are, do not furnish proof positive of a connection between these subterranean channels, but the fact that within a more limited area, as on the islands of Oomnak, Unalaska, and Oonimak, the activity of one crater ceased when another was in eruption, points in the same direction.

The Aleutian chain of islands connects the American continent and the Alaska Peninsula in the east and the Commander Islands in the west as with a knotted cable that has sunk under its own weight and caused its supports or end posts to converge on both the Kamchatkan and American coasts. Several ranges of moun-

as run at right angles with this chain or dam. When we look at the outward ape of the islands we find those in the west spreading and flattening toward the rth and northwest, and those in the east spreading to the west and south; consequently the lifting force must have been strongest in the direction from southwest northeast, and this has been the direction of nearly all the earthquakes within storic times.

It seems that three kinds of volcanoes are represented in the Aleutian chain—ruptive, or true volcanoes; intermittent, or partially eruptive volcanoes; and volanoes that have risen and acquired elevation without an outbreak through the urface. All the volcanoes, with the exception of Shishaldin, have their summits overed with eternal snow. The location of craters on these peaks is as follows: On Shishaldin the crater is located on the summit of the cone; that of Khaginak is on the summit; that of Akoon is also on the summit; on Akutan volcano the old crater was at the summit, and another of later date is situated on the north slope of the peak; the crater of Makushin is located at the summit of the blunted cone; the crater of Vsevidof, on Unimak Island, is on its comb-like summit; the crater of Chegulakh is at the summit of the cone; and that of Unaska is also on the summit of the blunted cone; the Korovinsky volcano has its crater in a depression between two peaks; the volcanoes of Kanaga and Tanaga have their craters at the summit, while that of Sitkhin is located on one side of the conical peak.

A majority of the volcanoes mentioned have their craters at the summit, and should consequently be true volcanoes, but we are by no means sure that all the apertures from which smoke issues are actual craters affording constant communication between the entrails of the earth and the external atmosphere. On many of the island volcanoes the appearance of smoke is due to hot springs or steam arising from cracks or clefts differing very essentially from actual volcanic craters. Where the smoking or steaming is periodical, and increasing in volume during the autumn of the year, we may presume that the constant communication with the volcanic earth beneath exists, since the voluminous atmospheric precipitation at that season of the year would penetrate to the heated strata of the earth and rise as steam from the furnace or crater.

The eruptions reported by the various observers must also be accepted with due caution; in many instances they consisted probably of ignited gases only, as several such eruptions have been described as taking place for prolonged periods on the summits covered with eternal snow. Occasionally the appearance of fire may be traced to the mere reflection of the glow of molten lava in the interior of the crater on the clouds and vaporous atmosphere above. It is true that lava, obsidian, and pumice stone are found at various points of the Aleutian Islands, but we have no description of streams of burning lava, a phenomenon which could not have failed to impress itself upon the mind of even the most careless observer. A few eruptions that have occurred within historic times consisted of ashes, stones, and liquid mud, and they seldom took place in the main craters, being apparently of a subordinate and spasmodic character. We know that sulphur is gathered from many of the craters, but the crystallization of sulphuric gas is among the weakest manifestations of volcanic activity. A majority of the Aleutian volcanoes belong to this class of sulphur-producing clefts and craters.

The falling in of mountains rising on the east coast of Bering Sea, the apparent swelling and bursting of whole sections of islands—all these are indications pointing to a constant process of formation of peaks, craters, and crevices by elevation. A gradual rising is still observable on Unimak Island and the north coast of Alaska Peninsula. Bering Sea at its western end has a uniform depth of a hundred fathoms or more, while the eastern half is very shallow. Another point in favor of the theory that this region owes its origin more to gradual elevation than to violent eruption lies in the fact that the island of Bogoslof was not the result of eruption and piling-up of débris or lava, as the island rose very slowly, and its crater was active but a very brief period of time; the elevation continued long years after all other volcanic manifestations had ceased. The only islands actually formed by accumulations of lava during eruptions in Bering Sea are St. Matthew, St. Michael, and Stuart Islands, the Pribilof group, and perhaps Amnak Island.

CHAPTER IV.—HISTORICAL SKETCH OF ALASKA.

A report upon a country so little known to us as Alaska is at the present day would scarcely be considered complete without a brief historical sketch of its first discovery and subsequent development until its final fusion into the union of States and Territories. For this purpose it is unnecessary to go back beyond the second voyage of discovery undertaken by Vitus Bering, who in the course of his first explorations some years previously had discovered the strait named after him, and proved to the world the separation of the continents of Asia and America. The so-called second northern naval expedition, fitted out in the year 1733 by order of the Empress Anna, though unfortunate in nearly all its details and fatal to its commander, served to show the Russian navigators the way to unknown regions of North America and adjoining islands. The information brought back by members of the expedition, however vague and unsatisfactory, acquainted the Russians with some islands the existence of which had been exceedingly doubtful. The labors of this expedition resulted in the discovery of the North American coast in the vicinity of latitude 58°, and of the several islands of the Aleutian chain, as well as of the greater portion of the Kurile Islands. A few of the latter had been reported as early as the end of the sixteenth century, but for more definite information as to these localities the world was indebted to the Russian traders and hunters or other adventurers, who, upon a mere rumor of the existence of valuable furs, set out in such craft as they could lay their hands upon and made their way from island to island until the whole region was discovered.

Up to the year 1743 we have no account of any expedition in search of furs in this direction, but from that time for a period of nearly sixty years merchants and other individuals fitted out vessels, and even squadrons of small craft, either individually or in company with others, for hunting or trading on the Aleutian and Kurile islands. Much of the information and reports brought back by these adventurers is supported by documents still in existence. These enterprises were exceedingly numerous, but for our purpose it is necessary only to mention briefly those that accomplished any new discoveries in the direction of the American coast.

The first to engage in this traffic was a sergeant of the Cossacks of lower Kamchatka, Emelian Bassof, who sailed in a small vessel of his own construction to the islands of Bering and Copper in four consecutive voyages in the years 1743, 1745, 1747, and 1749. The next adventurer to imitate Bassof's example was a sailor named Nevodchikof, who had served under Bering, and who sailed as commander of a vessel fitted out by the merchants Chuprof & Co., in the year 1745, reaching the islands of Attoo and Agatoo. In the year 1749 a small vessel, built and fitted out by the merchant Trapeznikof, succeeded in reaching the island of Atakha and a few of the smaller surrounding islands. In the year 1759 the trader Glottof, with a ship belonging to the merchant Nikiforof, advanced as far as the island of Umnak, and subsequently discovered the whole group of islands, including Unalaska, which was subsequently named the Fox Islands. The discovery of this group has also been ascribed to a navigator of another expedition, Bashmakof, but as Bashmakof accomplished his voyage nearly ten years earlier, and as there is positive proof that no fox skins were shipped to Kamchatka from the Aleutian Islands previous to the year 1762, his claim

to the honor of this discovery becomes very doubtful. The inhabitants of the islands also preserve a tradition that Glottof was the first Russian who came among them, and that he baptized many of the natives. Glottof was also the first to furnish a map of that region to his Government, which map contained eight large islands situated east of Unalaska.

In the year 1760 the merchant Andreian Tolstykh landed upon the island of Adakh, and in the course of a sojourn of three years accomplished a thorough exploration of that island and seven others surrounding it, and made a detailed report to the Government, stating that he had subjected the people to the Russian Crown. These islands were named, after him, the "Andreian Islands." The result of his reports to the Russian Government may be gleaned from the following ukase of the Empress Catherine II to the Governor of Siberia, Chicherin, dated March 2, 1766:

DENIS IVANOVICH:

Your information concerning the discovery and subjection of six Aleutian islands heretofore unknown, as well as the copy of the report of the Cossack Vassiutin, I have read with the greatest satisfaction. These enterprises are exceedingly pleasing to me. I am only sorry that there is no detailed description of the country and the people.

Your action in promising rewards to the merchant Tolstykh, and special privileges for any future undertakings of the same kind, under condition that a tribute of a tenth part of the result be paid to the Crown, I fully approve; and you may tell him that he may proceed in accordance with this proposition. Him, as well as the Cossacks Vassentin and Lazarev, you will promote into the class of Siberian nobles.

God grant that the proposed voyage may be a fortunate one, and crowned with success. I should like very much to learn whether any information can be gleaned from the natives of those islands of any previous visit of Europeans to their country, and if there has been no wreck of vessels of any other nation. You must urge upon these promyshleniks to treat the natives with kindness and to avoid all oppression or ill treatment of their new brothers.

To this ukase was affixed the Empress's own signature.

In the year 1761 a ship of the merchant Bechevin made the coast of the Aliaska Peninsula. Up to this time the relations between the natives of the islands and the Russian invaders had been altogether of a friendly character, the former submitting patiently to the demands of the newcomers, but the promyshleniks, encouraged by their easy conquests, proceeded from bad to worse, committing outrages of every kind, reducing the people to a state of servitude verging upon absolute slavery, and continued to act in this manner until the patience of even this timid race was exhausted.

The first Russians to feel the effect of a change in the attitude of the natives were the members of an expedition under command of the merchant Drushinnin, who arrived at Unalaska in 1762. Upon a given signal the people of all the villages on the island arose and slaughtered their oppressors, until of a complement of over 150 men only 4 individuals, who happened to be absent from their vessels, survived; these were subsequently saved through the good offices of a charitable Aleut, who kept them in concealment in the interior of the island until it was possible to communicate with the members of another expedition.

In the meantime the governor of Siberia, in answer to his instructions to furnish more detailed information concerning the new discovery, represented to the Empress that it was impossible to accomplish this as long as the new discoveries were visited only by ignorant traders, incapable of making any astronomical observations or scientific inquiries. The governor requested that some naval officers be detailed to make the desired explorations. The Empress referred the matter to

the Admiralty College, and after some correspondence two captains of the navy, Krenitzin and Levashef, were selected to execute the will of the Empress. After many mishaps these two officers succeeded in sailing from Kamchatka in two Government vessels in the year 1768. Krenitzin, who was senior in command, advanced as far as the strait between the Aliaska Peninsula and the island of Oonimak, and went into winter quarters, while his companion, Levashef, established himself with his crew in Captains Harbor, Unalaska Island. Krenitzin had some difficulties with the natives, resulting in several skirmishes, and both commands suffered terribly from the scurvy during the whole winter, disease and other misfortunes preventing them from doing much in the way of scientific observation, and in the following year they returned to Siberia with only one-third of the crew, the remainder having fallen victims to the scurvy or been killed by the warlike natives of the mainland.

The first visit to the island of Kadiak, made by Glottof, was also attended with disaster. He reached that island in the autumn of 1762, and went into winter quarters with his crew at the southeastern extremity of the island, in the neighborhood of the present settlement of Kaguiak. After several hostile attacks, which were repulsed by the Russians, the natives kept aloof, refusing to trade; but when in the course of the winter scurvy appeared among the invaders, reducing their strength to less than one-third, the savages again made attempts to complete the work of the dread disease by killing the survivors, and it was only with the greatest difficulty that Glottof succeeded, late in the following spring, in launching his vessel and making his escape to Oumnak.

The history of the Russian discoveries for the next twenty years is a continuous story of outrages committed by the numerous trading expeditions and of internal quarrels between themselves. The success of the earliest adventurers had been so great that every Siberian merchant who had a few thousand rubles at his command sought to associate himself with a few others in order to fit out a miserable craft or two and engage in the same business, and over sixty distinct enterprises of the kind can be traced. They all carried on their operations on the same basis; that is, the owner or owners of the vessel engaged a crew on shares, the cargo of furs brought back by each vessel being divided into two equal shares; one of these was claimed by the owners who had furnished the means, and the other half was divided in such a manner as to give each member of the crew one share, and to the navigator and commander two each. After the division had been made each participant was obliged to give one-tenth of his share to the government. These so-called traders had managed to do their business with an exceedingly small stock of goods. Where no opposition was offered by the natives the invaders did not even pretend to buy skins of them, but forced them to go out and hunt and turn over their booty to the promyshleniks without payment beyond a few beads and a leaf or two of tobacco given as a gratuity in consideration of good behavior; and the unfortunate natives were given to understand that as subjects of the Russian Empire it was their duty to render such services in behalf of the Crown.

The beginning of the eighth decade of the eighteenth century forms an epoch in the history of the Russian fur trade on the islands of Bering Sea. For several years previous to this period the most prominent merchant in Siberia engaged in this trade was Grigor Ivanovitch Shelikhof, a citizen of the town of Rylsk, who had come to Siberia

together with Ivan Larionovich Golikof, a merchant of the city of Kursk. For some time Shelikhof was engaged in business, in company with the latter and a few other Siberian traders, fitting out hunting expeditions to the Kurile and Aleutian islands, the results of which forced upon him the conviction that the yield of furs was growing less from year to year. The evident decrease in furs, together with the hostile attitude of the natives, provoked altogether by the inhuman treatment received at the hands of their visitors, called for some fundamental reform in the manner of doing business and the mode of treatment of the natives, in order to achieve a revival of trade. Fully aware of the necessity that the new discoveries should be connected with the mother country by closer ties, Shelikhof made up his mind to visit in person the distant regions, in order to discover the best means for the accomplishment of his ends, and for this purpose he persuaded his partner Golikof, together with another Golikof, Mikhail Sergeievich, who was called a captain, to form a new company for a period of ten years. The paid-up capital of the new firm was limited to 70,000 rubles, divided into 120 shares, and with this capital it was proposed to construct two or three ships and dispatch them on a sea voyage under the personal supervision of Shelikhof; or, according to the wording of the mutual agreement by the partners, "to sail for Aliaska land, called America, and for known and unknown islands, to carry on the fur trade and explorations, and to establish friendly intercourse with the natives."

Having fitted out at Okhotsk three galliots, named, respectively, the *Three Saints*, the *Archangel Michael*, and the *Simeon the Friend of God and Anna the Prophetess*, Shelikhof sailed with them on the 16th of August, 1783, taking passage with his wife on the first of these vessels. Bad weather and contrary winds caused the vessels of the expedition to separate, and after losing sight of the second-named vessel the commander concluded to winter on Bering Island. After visiting during the following year the island of Unalaska and repairing his vessels as far as possible, Shelikhof sailed with interpreters and ten Aleutians, who voluntarily joined his expedition, for the island of Kadiak, leaving orders for the commander of the missing vessel to follow him to the same place. On the 3d of August, 1784, the two vessels reached the island and entered a harbor, which they named after the ship *Three Saints*.

Several bidarkas were sent out to discover whether the island was inhabited, and in the course of the day they brought back one of the natives, whom Shelikhof treated with great kindness, making him presents, and sent him home the next day. It was evident that the savage liked the reception given him by the Russians, as he reappeared the following day and refused to leave Shelikhof again until his final departure from the island. He not only accompanied him and served him in all his voyages about the island, but he frequently warned him of the hostile intentions of his countrymen. This hostile disposition soon became apparent. A party of men sent out in boats to hunt and to explore the island discovered a multitude of natives assembled on a precipitous, rocky island a short distance from the coast. Shelikhof gives the number of these as 4,000, an evident exaggeration. Thinking that such an assemblage could not be without some special object, Shelikhof resolved to send to the island a deputation to invite the natives to trade with the Russians and to live at peace with them, but the only answer made by the savages was a threatening demand that the navigators should immediately leave the island and never dare to approach it again.

Upon this reply Shelikhof himself proceeded to the spot and endeavored to persuade the savages to assume friendly relations with himself and his men, declaring that he had come with no hostile intention, but was actuated by a sincere wish to benefit the people of the country. His words, as they were explained to the natives by the interpreters, had no visible effect, and a few arrows were discharged from the multitude, causing the boats to retreat to the ships. Measures were taken at once for defense in case of sudden attack. A few days later, in the middle of the night, the savages approached the harbor unobserved and threw themselves upon the Russians. The battle lasted until daylight, with great slaughter on both sides, for the necessity of self-preservation caused the promyshleniks to fight with extraordinary bravery, and at last the enemy, though vastly superior in numbers, was put to flight. This first victory did not by any means avert all danger, as it was reported by one of the natives who had come over to the side of the Russians that the savages were only waiting for considerable reenforcements from a neighboring tribe, and were fully resolved to renew the attack upon the intruders and to exterminate them to the last man. Under such circumstances Shelikhof resolved at once to attack the main stronghold of the enemy on the rocky island. With a picked crew of promyshleniks he attacked the savages in a position deemed by them impregnable, and after a few discharges from his iron 2-pounders stormed the place with such impetuosity that the enemy became completely demoralized, jumping over the precipices into the sea and surrendering in large numbers to the Russians. This victory was achieved at great sacrifice in killed and wounded on the part of the Russians. The prisoners taken were located at a distance of 50 versts from the harbor and furnished by Shelikhof with provisions and hunting gear. In order to secure their allegiance twenty children of the most prominent among the captives were taken as hostages on board the ships. Occasional attacks were made after this upon hunting parties at a great distance from Shelikhof's headquarters, but the invaders had attained such a moral supremacy over the people that no further combined or organized opposition was offered.

As soon as Shelikhof found himself relieved from anxiety concerning the safety of his small command he began the organization of his colony and a systematic exploration of the surrounding regions. He dispatched one expedition in four large bidars, carrying 52 Russians and 11 natives of the Aleutian Islands, and accompanied by 110 natives of Kadiak, each in his own canoe. The command proceeded along the northern side of Kadiak Island, and crossing the strait dividing the island from the Aliaska Peninsula (subsequently named after Shelikhof) explored the coast of the mainland to the northward as far as the mountainous coast of Cooks Inlet, inhabited by a different race. The expedition met with no opposition, which was probably due to its numerical strength more than to an actual liking of the natives for their visitors. A few hostages were brought back to Shelikhof's headquarters, but the trade carried on in the course of this exploration was of insignificant proportions. This large party on its return was located at Karluk, on the western side of Kadiak, and from here the hunters ranged north and south throughout the winter in active pursuit of the sea otter. The promyshleniks remaining under Shelikhof's immediate command also made explorations of the island in various directions, taking hostages from every village and establishing trade among the natives. One small party advanced as far as Shuiak, the northernmost island of the Kadiak Archipelago, where friendly relations were estab-

lished with the native chief; the latter succeeded in gaining the fullest confidence of the Russian leader, and was furnished with quite a large quantity of goods for trade, with the understanding that he was to act as Shelikhof's agent. The selection was an unfortunate one, as the chief not only retained the goods for his own use, but killed the men who were sent to look after the business, and then formed an alliance with the Kenaitze, on Cooks Inlet, who sent him a force of nearly a thousand men to join in a combined attack on Shelikhof's fortifications. When this news was received at Three Saints Bay, at the beginning of the year 1786, Shelikhof at once dispatched two parties to meet the enemy, one consisting of promyshleniks alone, and the other of friendly natives of Kadiak and Aleutians. They were instructed to disperse the approaching enemy and to establish a fortification on the island of Afognak, adjoining Kadiak. At the end of the season reports arrived from the north to the effect that the objects of the expedition had been accomplished, and that a lodgment had been effected, not only on Afognak, but on the coast of Cooks Inlet, after severe chastisement of the hostile Kenaitze inhabiting that region.

Another exploring party was sent to Prince William Sound with orders to proceed as far as Cape St. Elias, located by Bering in his second voyage, now known to be the southern end of the island of Kaiak. As a business venture this last enterprise was not very successful, the inhabitants of Prince William Sound and the Copper River delta showing decided aversion to intercourse with the Russians, and apparently the only result of the enterprise was the erection of crosses and various other signs at different points of the islands and seacoast for the purpose of notifying explorers of other nations that the coast had been taken possession of by the Russians. Both Spanish and English vessels had been in the same vicinity many years previous, and had taken formal possession, leaving the usual marks of notification. All these were carefully removed by the Russians before planting their own. The same geographical farce was enacted again at the time of Vancouver's cruise in the waters of Prince William Sound, when, on several occasions, the English discoverer took formal possession of one side of an island while the Spaniard erected his crosses on the other side, and at the same time the Russians, already permanently established, moved quickly about from place to place in their light, skin-covered boats, removing the marks of possession as fast as planted, and substituting their own.

At his headquarters in Three Saints Bay Shelikhof labored faithfully to enlighten his captives and hostages and to convert them to the Greek Catholic faith. His arguments were of a practical nature; he showed them the advantages of living according to the customs of Christianity and civilization, and the poor miserable savages were only too glad to be allowed to partake of such rude comforts as the Russian traders could boast, and in return for these advantages were always willing to go through any ceremony Shelikhof chose to perform. Nearly all the captives and many of the visitors from the neighboring tribes and villages were baptized and duly counted as members of the orthodox church, and at the same time a school was established for children and adults, in which the pupils were instructed in a few rudiments of education.

Shelikhof, according to his own account, took particular care to tell these people the most marvelous stories concerning the goodness, power, and benevolence of the Empress of Russia, representing it as the highest privilege to be one of her subjects. He had with him some wretched

portraits of the imperial family, and as these were the first examples of the painter's art ever beheld by the natives, they made considerable impression upon their minds. Shelikhof's wife also did her part in the work of civilization, instructing the girls and the women in needlework and such household arts as could be of any use to the savages.

In the month of May, 1786, the ship *Three Saints* had been repaired and fitted for the return voyage, and having convinced himself that all that could be effected in establishing and fortifying his headquarters in the newly discovered district had been done, Shelikhof resolved to take his departure, in order to obtain more private means as well as Government assistance and sanction for his enterprise. He sailed on the 22d of May, and just as his ship was leaving the coast the long-lost sister ship *Saint Michael* appeared in the distance. It appeared from the commander's report that this unfortunate vessel had been nearly three years making her passage from Kamchatka to Kadiak, a distance of about 1,000 miles. After promptly relieving the incapable commander Shelikhof ordered the ship to assist in an organized exploration of the coast in company with the remaining vessel of the fleet—one of the vessels to visit the northern coast of the peninsula and proceed thence northward as far as Bering Strait, while the other was to survey the coast from Kadiak eastward.

Shelikhof himself arrived at Kamchatka on the 8th of August and proceeded at once to Okhotsk, reaching that port in January, 1787. He had taken from the islands thirty natives, who subsequently accompanied him to Irkutsk. He at once submitted to the governor-general of eastern Siberia a detailed report of his discoveries, with charts of the islands and plans of the fortifications and stations established, asking for instructions for the future conduct of the enterprise; and he made the bold statement that by his labors 50,000 subjects had been added to the Russian Empire, ready to do homage to the Empress and to accept the Christian faith. If he had divided this number by ten he would have been nearer the truth. He stated to the governor-general that without the approval of the Empress his labor would be in vain, as he had acted with the sole purpose of doing his humble share in the extension and aggrandizement of his country and in securing the discoveries made by Russians against the encroachments of other powers, and upon his urgent representations Jacobi, the governor-general, forwarded his reports and charts to St. Petersburg.

In the meantime Golikof, Shelikhof's partner, had paid a visit to his home in the city of Kursk. The Empress happening to pass through the place on one of her voyages through the Empire, Golikof seized the opportunity to present himself before her and to display the maps and charts of his partner. The Empress was at once interested, inquired into the doings of the firm in all its details, and gave orders that Shelikhof present himself in person at the palace as soon as he came to St. Petersburg. Immediately after the return of the Empress to the capital two expeditions were organized for the exploration of the new discoveries in the far east. One of these was to proceed by sea from the Baltic, with Kamchatka as the objective point, and the command of the enterprise was given to Admiral Mulovsky. The other expedition was to be fitted out at Okhotsk, under command of the English Captain Billings, who was to give special attention to the American Coast. The first expedition did not sail, on account of a declaration of war between Sweden and Russia at that time, while the second was delayed until the year 1790.

The governor-general of eastern Siberia was at once instructed to

PLATE VII.

TENNANAH TRIBE - MAN AND WOMAN.

report the best means of fostering the commercial enterprises in the Pacific Ocean, and of maintaining Russian supremacy over the new discoveries; and he was also to report a system of management of the native tribes, in order to extend to them the benefits of Christianity and civilization, and to improve their mode of life.

In order to secure Russia's possession of her new discoveries Jacobi considered it sufficient to send at once thirty large copperplates with the Russian coat of arms, and as many wooden crosses with the inscription "Land in Russian possession." The greater part of these were to be turned over to the agents of Shelikhof and Golikof, who were already acquainted with the best localities for planting such tokens. With regard to the amelioration of the condition of the natives the governor proposed that the tribute theretofore levied by Cossacks accompanying the traders, or by the latter themselves, should be changed to a voluntary tax, left to the determination of the native chiefs. At the same time Jacobi expressed the opinion that as long as every Siberian trader was allowed to roam at will over the islands and coasts of the Pacific Ocean the natives would always be at the mercy of these men, who carried with them crews composed of the worst elements to be found among Siberian convicts and desperadoes. He called attention to the humane and patriotic manner in which Shelikhof had conducted his enterprises and explorations, and to the fact that he had baptized many of the pagan natives and had done his utmost to instruct both children and adults, always proclaiming that everything he did was done in the name and for the glory of Her Majesty the Empress; if, therefore, the regions incorporated with the Empire through the efforts of these men were left under their control, the interests of both the Crown and the new subjects would always be duly considered, while the lawless horde of Siberian promyshleniks and convicts would be driven from the country, and thereby the most fruitful cause of strife with the natives removed forever. Jacobi was very eloquent in urging the Empress to confer exclusive privileges upon the company represented by Shelikhof and his partners; but his ardor in the matter was to a certain extent explained by the subsequent appearance of his name among the shareholders of the company.

Upon the receipt of Jacobi's report and propositions, and the petition of Shelikhof and Golikof concerning their proposed further extension of trading operations over the islands of the Pacific and the coast of America, the Empress at once instructed the department of commerce, through its president, Count Chernyshev, to make a thorough examination of all subjects pertaining to the condition and trade of those localities, and of the means of extending Russian commerce in the Pacific Ocean. The committee on commerce presented, in March, 1788, the following opinion:

The important results obtained through the organized exertions of the Shelikhof company deserve not only the approval of the Government of the continuance and extension of those operations, but also the most active assistance, especially taking into consideration the great expenditure incurred by the company, who has already invested 250,000 rubles without any prospect of speedy return, and whose expenses in the immediate future can not be estimated at less than 200,000. The prosecution of Shelikhof's enterprise is of the highest importance at the present time, on account of the interruption of our trade with China, which latter circumstance involves great loss to the whole of Siberia and has a pernicious influence on all Russian commerce. The goods and manufactured articles intended by the Russian merchants for the Chinese trade are now blocking up warehouses without bringing any returns, and no profit can be realized upon the capital thus invested. The articles which Russia has carried to China in order to obtain tea and nankeen are partially obtained from other powers, and a loss in this direction involves a rise in the price of exchange. Finally, the high prices of all stores and provisions needed for fitting out expedi-

tions to the islands of the Pacific and American coast would alone justify the company to ask for some assistance from the Government, without which the operations would be necessarily limited. In consideration of the facts stated the committee takes the liberty to represent to Her Majesty that it would be well, in accordance with the request of Shelikhof and Golikof, to place to their credit from the public treasury the sum of 200,000 rubles for twenty years, without interest, the capital to be returned in installments at convenient intervals; the sum should also be exempt from taxation. This favor would enable the company to resume their enterprise in the most vigorous manner and thereby to revive trade and traffic throughout the eastern portion of Her Majesty's dominions. The Government would always be in a position to reimburse the Treasury by levying a duty of 10 per cent on goods and furs crossing the border.

The committee recommends action upon the propositions of Governor-General Jacobi in accordance with his plans, but to him should be left the appointment of commanders of fortifications established in the new regions.

An addition was made to this report on recommendation of the committee in behalf of Shelikhof and Golikof, which resulted in the following imperial ukase, issued September 28, 1787:

In consideration of the services rendered by the merchants Shelikhof and Golikof, to the advantage of the Imperial Government in the discovery and settlement of unknown countries, and the establishment of commercial intercourse with native tribes, we most graciously present to each of them a sword, and a gold medal to be worn around the neck, with our portrait upon one side and a legend on the other, stating the reason for which the decoration was conferred. The usual letters of transmittal and commendation to accompany these awards.

Signed by us and countersigned by the president of the senate.

On his return to Irkutsk Shelikhof at once ordered the equipment of two vessels for the voyage of discovery—one being destined for the Kurile Islands and the other for the American Coast and the Aleutian Islands, with the intention of establishing a settlement as far south on the coast of the mainland as possible. In the year 1787 he dispatched another vessel from Okhotsk with supplies for the stations of his company already established on the islands. In 1788 the ship *Three Saints* sailed under instructions issued by Delarof, a Greek, who had been to Kadiak as manager of the Shelikhof colony. Two experienced sailors, Ismaïlof and Bochorof, were in command of this expedition. In the month of May the ship arrived in the Gulf of Chugatch, or Prince William Sound, where quite a trade was carried on with the natives of that vicinity; and as the price paid for a sea-otter skin at that time consisted of 8 or 9 needles and 3 or 4 small beads, the traffic must have been profitable. The two explorers entered the Bay of Nuchek and remained at anchor for some time in one of its many coves, which they named after Saints Constantine and Helena. All the chiefs of the neighborhood who came to visit the Russians were duly decorated with copper and bronze medals in accordance with instructions from Jacobi, but it was found impracticable to place the copper tablets claiming possession for the Russian Empire in any prominent position, on account of the thieving propensities of the natives, who would seize immediately upon any scrap of metal within their reach.

From Nuchek the ship proceeded to Yakutat, or Bering Bay. Here the head chief also received a medal and at his earnest request a portrait of the prince heir, the grand duke Paul Petrovich. According to Bochorof's account the chief was exceedingly proud of this piece of art, but when another explorer visited the vicinity, only a year later, not a vestige of the portrait could be found, and the natives stated that immediately upon the departure of the *Three Saints* the grand duke's image had been burned with great festivities and rejoicings. This expedition also entered Lituya Bay, which had, two years previously, been visited by La Pérouse, and named Port des Français, the French

meantime an additional discovery had been made which increased anxiety of Shelikhof and his partners to obtain from the Govern- t the exclusive right of trade on the American Coast.

he skipper Gerassim Pribilof had succeeded, after several vain mpts, in finding the summer resort of the fur seals, first on the ıd of St. George and in the following year on St. Paul. Small ıbers of these seals had been killed annually during their passage ›r down between the islands of the Aleutian chain, and the skins found a ready market on the Chinese border; but when Pribilof his companions returned with the marvelous tale of millions of ıe animals congregating on two small islands, easy of access, this ıch of the trade became at once of the highest importance. To ıre the overland trade with China was a question of life and death ı the Siberian merchants, but as they could not compete with the ›les and manufactured articles introduced into the Celestial Empire England and Holland by sea, the trade had been declining and lan- ıhing for years. This new discovery, however, caused a sudden ıge in the aspect of commercial affairs on the Chinese border. The stials prized the skin of the fur seal above any other. They had wn this kind of peltry from time immemorial—probably through ›ments made from the coast of Japan—and had long since discov- l a process of removing the hair and dyeing the fur in various rs. With an almost unlimited supply of this article at their com- ıd the Russian merchants could have their choice of Chinese staples t salable in the marts of their own empire.

uring the few years of the existence of the Shelikhof company, ı partial protection of the Empress and the exclusive privileges in discoveries made by their own navigators, nearly all the smaller panies had gradually gone to the wall. It was not always the power ferred upon a great firm by its larger capital that gained the day in ›irited contest for a valuable trade; it frequently occurring that the ›loyees of one company resorted to force of arms in order to obtain antages over the others, and then, of course, the strongest company sure to win. The only rival of Shelikhof and his company during last period of free trade was the company named, after two of its ıcipal shareholders, the Lebedev-Lastochkin Company. The stations his company were located on both islands and mainland, often in

equally interested in both companies. In spite of these circumstances the quarrels and hostile encounters between the traders increased from year to year, until on Cooks Inlet the depredations committed and the raids made by one party of hunters upon the other acquired such dimensions as almost to deserve the name of warlike operations. A native Siberian by the name of Kolomin had established himself for the Shelikhof company at the site of the present Kenai, or Rédoute St. Nicholas, where he lorded it over the natives with great severity and wanton cruelty. A Russian captain of the rival company, named Konovalof, drove him out of his fortification and caused him to build up a new settlement some 20 or 30 miles to the southward. The conqueror in this conflict, however, had no sooner begun to attend to his trade with the natives, and to send out hunting parties and explorers, than his vanquished enemy seized the opportunity to make night attacks upon any small detachments sent away to a distance from the fort; and in many of these enterprises Kolomin was assisted by the natives of the warlike Kenaitze tribe. Both parties had traders and hunters on Prince William Sound, on the other side of the Kenai Peninsula, and hostilities soon broke out in that region also. This fighting between the Russians had, of course, the most pernicious effect upon the natives, who seized upon every opportunity to fall upon the vanquished in the various encounters and kill or capture all that had been spared by the stronger party.

At this time of general anarchy, and when the very existence of the Russians in these distant regions was threatened, a new character appeared upon the scene. Shelikhof recognized that without the strong hand of some experienced man at the head of their enterprise in the colonies the business would soon prove a total loss, as every branch of it was then declining, and he finally selected a merchant from the town of Kargopol by the name of Baranof, who had displayed extraordinary energy and decision in the management of his own affairs in Siberia. Shelikhof approached him several times with requests to enter the employ of his company, but being in business for himself, Baranof, who had an independent spirit, always declined, until finally he met with overwhelming losses in his own enterprises, having two or three of his trading caravans destroyed and plundered by the savage Chukches in the vicinity of Anadyrok. Shelikhof at once called upon the ruined trader and offered him ten preferred shares of his company for his services. A contract was concluded on the 18th of August, 1790, and the man who finally established the Russian Empire on our North American Continent sailed for his new field of action.

The Russian Government was fully acquainted with the results of Cook's voyages and his visits to the northwestern coast of America. He had in 1778 taken possession of various points of the coast on Cooks Inlet and Bristol Bay and had made a brief stay on the island of Unalaska, where he tarried a few days for the purpose of restowing his cargo. Prince William Sound had been visited later by Portlock, Dixon, and Meares, who also extended their trading operations to Cooks Inlet and even to Kadiak Island. The Spaniards also had determined the astronomical positions of many points in that vicinity, and given names to a few bays and islands. Apprehensive that such attempts might be renewed in greater force, the Imperial Government had enjoined the Shelikhof company to prevent, if possible, the seizure by foreign powers of any of the territory then occupied by the Russian traders, while Baranof was furnished with the most minute instructions upon this subject calculated to guide his actions under any emer-

gency that might arise in such a way as to secure the actual or imaginary rights of the Russian Government in the Pacific Ocean. The English establishment at Nootka, on Vancouver Island, was considered as especially threatening to Russian interests, and Baranof was instructed to push his establishment southward in that direction as far as possible, and even to occupy Nootka itself if it lay in his power. Every vestige or mark of foreign occupation was to be destroyed and replaced by the copper tablets previously mentioned.

The first difficulty Baranof found himself obliged to cope with was the hostile attitude of the rival traders on Cooks Inlet, but he made short work of these. Both Kolomin and Konovalof were seized, placed in irons, and sent to Siberia for trial, and their followers were scattered over the various trading posts of both companies in such a manner as to make it impossible to communicate with each other. A cruel castigation with the knout was inflicted in most cases, in order to impress the wretches with the fact that the reign of lawlessness was at an end and that the promyshlenik no longer ruled the land.

Though small of stature, Baranof was possessed of a physique of extraordinary strength and great power of endurance. He was an indefatigable traveler, and had a natural talent for management and organization. As soon as he arrived on Kadiak Island he discovered that the headquarters selected by Shelikhof were not adapted to the requirements of the larger scale of operations he had in view, and took steps at once to remove the principal establishment to the harbor of St. Paul, on the northeastern end of the island, where the settlement of that name is now located. There he had timber at hand sufficient for all the buildings of the company, and an ample harbor, with many outlets, allowing ships to depart and enter with almost any wind.

As soon as the foundation was laid to the new central establishment at St. Paul Harbor, Baranof returned with renewed vigor to the exploration of the adjoining coast. The skipper Bocharof was dispatched with a party of 30 men in a large skin-covered boat to examine the northern coast of the Aliaska Peninsula, and began his exploration at Issanakh Strait, between the southern point of the peninsula and the island of Unimak. He followed the coast of the mainland northward, and was well received by the natives of the few scattered villages he encountered on his way. Late in the season Bocharof's expedition arrived at the mouth of the Kvichak, the outlet of Lake Ilyamna. The chief of the populous village located here treated the newcomers with the greatest consideration, and expressed his willingness to give hostages and live at peace with the Russians forever after. The approach of winter and the lack of fresh provisions, together with the appearance of scurvy among his men, caused Bocharof to make an effort to return to Kadiak. His native friends told him of a portage route across the peninsula; this he followed, discovering at that early day the quickest and safest means of communication between the Strait of Shelikhof and Bering Sea, and he returned to St. Paul Harbor at the beginning of winter with a large quantity of furs, walrus ivory, and deerskins. Baranof himself had set out early in the spring of 1793 in two large skin boats with 30 men in the direction of Cooks Inlet, but, finding the yield of sea otters in that vicinity decreasing, he made his way around the Kenai Peninsula into the waters of Prince William Sound, where he entered into friendly relations with natives of all the coast villages, taking hostages from them; and at Nuchek Harbor he encountered Ismaïlof, the commander of the *Saint Simeon*, who had been cruising in search of new discoveries. After dispatching a portion of

his command to the island of Sukluk (Montague), Baranof prepared to encamp on the island. Just at that time a large force of Kolosh Indians appeared in the harbor bent upon avenging some real or imaginary insult offered to one of their tribe by the Chugatch Innuits. Observing the small force of Russians, they concluded to combine revenge with profit by taking possession of the stores and trading goods belonging to Baranof. In the middle of the night they surrounded his bivouac, and under cover of darkness succeeded in throwing themselves upon the tents before the alarm was given. The panic created among the Aleutians of Baranof's party added much to the confusion, and everybody was groping for arms and ammunition in the dark, scarcely knowing in which direction to shoot, or able to discern a friend from an enemy. At last, toward daylight, the superior arms of the Russians prevailed, and at the same time reenforcements arrived from Ismaïlof's ship. Twelve dead bodies of the enemy were found on the field. Their wounded they had carried away with them. In Baranof's party 2 Russians and 9 Aleuts were killed and over 15 wounded. The commander himself wrote of the occurrence in the following words:

> God preserved me, though my shirt was pierced by several spears, and the arrows fell thick, without doing much damage. I was awakened from a sound sleep and had no time to dress, but as soon as I had emerged from my tent I knew that we should be able to beat them.

As early as 1791 Shelikhof had conceived the idea that, in order to convince the Russian Government of the company's intention to permanently settle and develop the newly discovered country, it would be wise to construct a few ships in the colonies to ply between the new settlements and Okhotsk or Kamchatka. He acted upon this idea at once, and in the autumn of the same year dispatched to Kadiak in the ship *Northern Eagle*, under command of Lieutenant Shields, a cargo of iron, cordage, canvas, and other materials for shipbuilding. The captain of the vessel was a practical shipwright who had left the English naval service and entered the Russian army. Shelikhof, always looking about for the best means to advance his colonial enterprise, discovered the fact of Shields's practical knowledge of shipbuilding and engaged his services at once. As soon as he had the means at hand, Baranof selected a bay in Prince William Sound as his future shipyard, the harbor being named Resurrection Bay. Timber of the largest size abounded in its immediate vicinity, and under Baranof's personal supervision and Shields's practical management a ship was completed in the summer of 1794. This craft had two decks, three masts, a length of 73 feet by 23 feet beam, and 13½ feet depth of hold; she measured 180 tons, and was named the *Phœnix*. This was certainly the first three-masted ship ever built on the northwest coast of America. Having no paint or tar, Baranof was obliged to cover the new craft with a coating of spruce gum, ocher, and whale oil. As soon as the *Phœnix* was launched the keels of two smaller vessels, 40 feet in length, were laid, and these also were finished the following year and named the *Dolphin* and the *Olga*.

By this time Baranof's operations had been extended beyond Yakutat, or Bering Bay, and he was reaping a rich harvest of sea otters in that vicinity, principally by means of his own hunting parties of Innuits from Kadiak and Unalaska.

The two ships of Captain Vancouver, the *Discovery* and the *Chatham*, cruised in Cooks Inlet and Prince William Sound during the summer of 1794, but the great English explorer never succeeded in meeting Baranof, in spite of repeated efforts. Baranof had his instructions to

keep out of the way of foreigners, and to give no unnecessary information concerning the company's business or the intentions of the Russian Government. At the same time he was afraid that Shields, the Englishman, might be induced to leave him should he meet with his countrymen. His desertion would have been a great misfortune, indeed, and would have nipped in the bud all schemes of naval construction for the future. Baranof succeeded in preventing a meeting, though a few letters passed between officers of the *Discovery* and the English shipwright.

Another important event of the year 1794 was the arrival of the first mission of the Greek Church in those waters. For several years the astute Shelikof had petitioned the Government to dispatch priests and missionaries to the new settlements, stating that his own efforts to spread the gospel among the pagan natives must necessarily be limited, and that he should not feel safe among such numerous savage tribes unless the peaceful doctrines of Christianity were inculcated and preached among them. In a special ukase, dated June 30, 1793, the Empress, Catharine II, instructed the metropolite Gabriel to select the best material for such a mission, and in the following year the archimandrite Ivassof, with seven clergymen and two laymen, was dispatched to the island of Kadiak from Okhotsk on two vessels. At the same time Shelikof had asked that a certain number of Siberian convicts, especially mechanics and farm laborers, with their families, might be selected to establish an agricultural settlement on the coast of America. This request was also granted by the Empress Catherine in a ukase dated September 1, 1793, and the whole force, numbering over 200 persons, arrived at Kadiak together.

Of the convict settlers Shelikof retained four families at Okhotsk, with the intention of sending them to the Kurile Islands, and the remainder were to be settled in the vicinity of Yakutat, but the best mechanics and laborers among them were picked out for service at the various stations of the company before the colonists reached their destination.

The members of the mission at once began work at Kadiak and went forth to preach in various directions. One of them, named Makar, went to Unalaska and converted and baptized within a few years nearly the whole of the Aleutian tribes. Another missionary, the monk Juvenal, proceeded northward to Cooks Inlet, and from there to the Ilyamna region, where he was finally slain by the natives for too active interference with their polygamous practices; while a third, named Germand, established a school on Spruce Island, in St. Paul Harbor, where he lived for over forty years, instructing native boys and girls in the Christian faith and in agricultural and industrial pursuits. The other ecclesiastics remained in the immediate suite of the archimandrite, and a few years later accompanied the latter to Irkutsk, where he was ordained as bishop for the new Russian possessions on the Pacific. While returning with his new honors from Okhotsk the ship foundered at sea with all on board, and was never heard from again. This was the vessel constructed by Baranof in 1794. From that early time Russian clergymen and missionaries have never been absent from Alaska, but the number of actual communicants of the Greek orthodox churches has never exceeded 10,000 at any one time. In the course of the present century seven organized parishes and three mission stations were established, the latter all located on the mainland.

Shelikhof lived only long enough to see verified his prediction of a revival of the Chinese trade by means of the introduction of fur-seal

skins. Commercial transactions at Kiakhta had almost wholly ceased for many years, but in the year 1794 the Chinese Government notified the governor of Siberia that the merchants of the Celestial Empire were anxious to resume their operations on the border, and at the same time new privileges were granted to the Russians in conducting the intercourse. In the following year, on the 20th of July, 1795, Shelikhof died at Irkutsk, a few days after the receipt of a patent of nobility from the Empress conferred in consideration of his services to his country; but his widow continued the management of the company's business. It had been a favorite scheme of her husband to effect the union or consolidation of the various companies trading in eastern Siberia, Kamchatka, and the American colonies, a scheme which was also favored by Ivan Golikof, one of the partners; and when the widow assumed control of the common business she used her influence to carry out her husband's wishes. The consolidation was finally effected in the year 1797, and the new firm, under the name of the Russian-American Company, obtained a charter from the Russian Government granting it the exclusive right to all the territory and the resources of water and land in the new Russian possessions, including Kamchatka, the district of Okhotsh, and the Kurile Islands. This charter, which was finally (1799) granted by the Emperor Paul, who had at first opposed the creation of such a monopoly, marks an epoch in the history of Alaska, which from that time until the transfer of the country to the United States became identical with that of the Russian-American Company. The privileges conferred by the charter were very great and of the most exclusive nature, but at the same time the company was burdened with some heavy obligations, being compelled to maintain at its own expense the government of the country, a church establishment, a military force, and at various points in the territory magazines of provisions and stores to be used by the Government for its naval vessels or troops whenever it was necessary. At a time when all such stores had to be transported from Russia overland through Siberia this was the most burdensome clause of the charter, and numerous petitions were forwarded by the company to be relieved from its provisions. Under this charter the company paid no royalty or rent to the Government, but the treasury was in receipt of large sums in the shape of duty on teas carried by the company over the Chinese border. The records show that in some years as much as 2,000,000 rubles were paid by the company to the Government for these duties alone. The company was also obliged to make experiments in the establishment of agricultural settlements. The natives were freed from all taxes in skins or money, but those who were under its control were obliged to furnish a certain quota of sea-otter hunters to the company every season, all men between the ages of 18 and 50 being liable to this duty, but not more than one-half of this number could be called upon at one time. The management of the company was placed in the hands of the administrative council, composed of shareholders in St. Petersburg, with a general office at Irkutsk and a chief manager residing in the colonies, who had to be selected from officers of the imperial navy of a rank not lower than post-captain. The chief manager had an assistant, who was also a naval officer, and each received a salary from the company independent of his pay from the Government. As long as the company maintained a military or naval force in the colonies at its own expense such forces were entirely at the disposal of the chief manager; and the company also had the privilege of selecting the soldiers and sailors in its employ from any force stationed in

Siberia, which gave it the opportunity of picking out such mechanics and tradesmen as were most useful in the colonies. The company was also permitted to purchase at cost price powder, lead, and arms from the government works in Siberia. The chief manager had full jurisdiction over all offenders and criminals within the colonies, with the exception of capital crimes; offenders of that class were given a preliminary trial and then forwarded to the nearest court of justice in Siberia. In cases of mutiny or revolt the powers of the chief manager were absolute. The servants and employees of the company were engaged for a certain term of years, at the end of which time the company was obliged to furnish them free transportation to their homes, unless the unfortunate individuals were indebted to it, in which case they could be detained until the debt was paid. This privilege enabled the company to retain in the colonies any men among the lower class of employees whose services were desirable, as the miserable pittance allowed to the employees made it an impossibility to keep out of debt. Even among the higher officials were many who had served one period of seven years after another without succeeding in clearing themselves sufficiently from their obligations to the company to be allowed to return to their homes.

The charter was granted for a period of twenty years, counting from the year 1799. The company also had the right to carry its own flag, to employ naval officers as captains of its vessels, and to call itself, "under the highest protection of His Imperial Majesty, the Russian-American Company." In the meantime the new company began to attract considerable attention at St. Petersburg and Moscow, nobles and high officials of the Government buying shares, and finally the Emperor and members of the imperial family began to invest; the latter, however, making their investments under the pretext of donating their shares to schools and charitable institutions. It was the first enterprise of the kind in the Russian Empire, and under imperial patronage rose rapidly in public favor. Its most sanguine supporters prophesied for it a future prosperity as great as that of the English East India Company; and many of the shareholders were dreaming of an annexation of Japan and perhaps portions of China on one side of the Pacific, and of the whole coast down to the Gulf of California on the other.

A nobleman high in office and of very influential connections, Count Nikolai Rezanof, chamberlain of the Emperor, had married a daughter of Shelikhof. His wife died two years after the marriage, but the Count had identified himself with his father-in-law's enterprise, and the final development of the company into the grand monopoly was chiefly due to his incessant exertions and his judicious advice to his mother-in-law, the widow of Shelikhof.

Baranof in the meantime had been very successful in extending the domains of the company. In the year 1799 he extended his operations to Sitka, a region which had been explored a few years previously by Captain Shields under Baranof's orders. Shields had met there two ships belonging to American traders, who informed him that both English and American vessels frequently obtained cargoes of sea-otter and other skins in that vicinity. Anxious to locate himself at a point where he could communicate with vessels of other nations and purchase supplies of them, Baranof made up his mind to establish himself permanently in the Bay of Sitka or Norfold Sound, and proceeded to that locality in the brig *Catherine*, accompanied by a large fleet of Innuit hunters and their bidarkas. With the assistance of these he secured over 1,500 sea-otter skins within a few weeks, and then began the con-

struction of a fortified trading post, the site selected for which was distant about 6 miles from the present Sitka. During the winter of 1799 and 1800 his whole force was busy erecting substantial log houses and a high stockade surrounding them. In the spring of 1800 some American trading ships made their appearance, and the owners carried on a brisk traffic under the very eyes of Baranof, who at once forwarded dispatches to the administrative council of the company, representing that the Government must put a stop to such infractions upon their privileges. The strangers obtained most of their sea-otter skins in exchange for firearms, and paid no attention to Baranof's remonstrances. As soon as the Americans had left, Baranof returned to Kadiak, where he found the employees of the company in a state bordering on insurrection. There had been disputes between officers of the company and members of the clergy, each declaring himself independent of the other, and the bad feeling had extended even to the ranks of the common laborers. No attention was paid to the orders of the company's agents in charge, and a few bold spirits had already commenced to fit out one of the small vessels of the company for the purpose of leaving for other climes, when Baranof returned and in a few days succeeded in restoring order, punishing the chief offenders with great severity. A man by the name of Larionof made an attempt to assassinate the chief manager, but Baranof seized his assailant's hand, wrenched his weapon from him, and strangled him to death with his own hands.

The loss of the ship *Phœnix*, which occurred about this time, interfered most seriously with Baranof's plans, as he stood in great need of both goods and men. The garrison he had left at Sitka was a small one, surrounded by numerous hostile tribes. He felt the necessity of reenforcing his establishment there, while he saw himself powerless to send any succor of supplies or promyshleniks. Rumors of war with England had reached the colony and added to Baranof's perplexities. He set out at once on a round of the several trading establishments to warn the traders and give instructions how to act in case of the appearance of hostile cruisers. During his absence news was received at Kadiak of the destruction of the Sitka settlement by the natives, which disastrous event was the result of a preconcerted plan on the part of all the native tribes inhabiting the neighborhood. On a certain day, when over half of the small garrison was absent from the fortification hunting or fishing, a force of several thousand armed men surrounded the blockhouse, and, assailing it from all sides at once, soon gained an entrance. All the inmates, including the commander, Medvednikof, were massacred at once, and over 3,000 sea-otter skins were taken from the warehouse. Of the men who were absent at the time of the attack three Russians and five Aleuts succeeded in hiding in the woods until they could communicate with an English vessel anchored in the vicinity. Eighteen women who had been washing clothes in the river were taken and held captives by the Indians. The captain of the English vessel referred to, Barber by name, succeeded in enticing two of the most prominent chiefs on board of his craft and into his cabin. After feasting them at his table and plying them with drink he placed them in irons, and, having quite a battery of guns, was able to make his own terms for the release of his prisoners. These terms were the surrender of the captive women and of 2,000 sea-otter skins. After some hesitation on the part of the savages the conditions were accepted, and Barber sailed at once for Kadiak. Here the captain demanded of Baranof for his men and women a payment of 50,000 rubles for the time spent in

rescuing them. With this demand Baranof could not or would not comply, and after many days an agreement was arrived at on the basis of the payment of 10,000 rubles.

Nearly at the same time with the Sitka disaster 180 Aleutian hunters were surprised and massacred at various points in the vicinity, and one party, consisting of nearly 100, perished almost to a man from eating poisonous mussels in the strait separating Baranof from Chichagof Island, which derived its name from this disaster (the Russian name was Pogybshie Strait, meaning "destruction" strait, not "peril," as it has been translated by American geographers). Attacks upon hunting parties were made at many other points along the coast inhabited by the Thlinket or Kolosh.

At this time one disaster after another overtook the Russian colonies in America. Three ships loaded with provisions and stores were wrecked on their way from Kamchatka, and the employees of the Russian-American Company were on the verge of starvation when an American ship arrived at Kadiak from New York, enabling Baranof to purchase a cargo, consisting chiefly of provisions, for 12,000 rubles. A portion of these supplies was at once forwarded to Yakutat and Sitka, while Baranof himself proceeded to Prince William Sound to wind up the affairs of the Lebedev and other companies which were still represented by hunting parties in that region. In Prince William Sound Baranof met Kuskof, who had been in the vicinity of Yakutat in charge of a hunting party of 300 canoes, and reported that he had repulsed an attack by the natives with considerable loss to the latter. He was still unaware of the disaster that had overtaken the new settlement of Sitka, but as soon as he heard of it from Baranof he proposed that they should both repair to the scene of action at once and inflict punishment upon the hostile Kolosh. The chief manager did not act upon Kuskof's suggestion, chiefly because the only vessel at his command was the *Catherine*, a schooner of less than 50 tons burden and but poorly provisioned, while Kuskof's hunting party had only just returned from a long voyage along the coast and a series of combats with the warlike Kolosh. Before returning to Kadiak Baranof visited his shipyard on Prince William Island and laid the keels of two more vessels to be employed in cruising along the coast occupied by the Kolosh for the protection of his hunting parties. At Kadiak he found dispatches from Siberia that had been saved from one of the wrecked transports and forwarded by canoes. A change of rulers had taken place in Russia, and Alexander I had succeeded the Emperor Paul. The commander at Okhotsk, in making the announcement, forwarded an order to assemble all the natives of Kadiak and the "surrounding countries," in order to inform them of the ascension of the new Emperor to the throne and to demand from them the oath of allegiance.

Situated as Baranof then was, almost without provisions and unable to rely upon his few followers of Russian extraction, he thought it unsafe to assemble a large number of natives at his headquarters, where they would easily discover his temporary weakness, and consequently he did not carry out the order from Okhotsk. One of his subordinates, a Mr. Talin, who had been an officer in the navy, but was dismissed for bad conduct, sent a lengthy report on the subject to Irkutsk, making various other charges against Baranof in addition to his apparent disobedience of orders. The complaint was duly forwarded to St. Petersburg and laid before the Senate, but that body decided that under the company's charter Baranof was not subject to any orders from the local commander at Okhotsk. An order for the dismissal of Talin was the result of the

investigation; but unfortunately for Baranof, the document was delayed nearly two years in transmittal through Siberia to the Russian colonies and during all that time Talin succeeded in creating disturbances wherever he was stationed on the American coast.

Shelikhof had petitioned the Russian Government some time before his death for permission to employ naval officers on leave of absence as commanders of his trading vessels, but the request was granted only at the time of the consolidation of the various companies, a clause to that effect being incorporated in the charter of the Russian-American Company, and in the year 1801 two capable officers of the navy, Lieutenants Khvostof and Davidof, received permission to enter the company's service. Up to that time the ships sailing from Okhotsk and Kamchatka were managed by "morekhods," that is, "seafaring men. This title was applied to anybody who had made a sea voyage, no matter in what capacity; but they were generally hunters or trappers from Siberia who had some slight experience in flatboat navigation on the rivers. They were entirely ignorant of nautical science and unacquainted with the use of instruments, relying altogether upon land marks to make their way from Asia to America. The most extraordinary instances of stupidity in managing their vessels are related of some of these so-called navigators. Once out of sight of land they were lost, and compelled to trust to chance in hitting upon the right direction to make the land again. It was the practice to coast along the Kamchatka shore until nearly opposite the Commander Islands and to wait for some clear day when the latter could be sighted, then the crossing was made and, satisfied with such a brilliant result, the skipper would beach his craft for the remainder of the season and pass the winter in killing fur seals and sea cows and salting down the meat for his further voyage. Late in the following spring, rarely before the month of June, the vessel was launched again and headed at a venture to the nearest islands of the Aleutian chain. If the captain succeeded in finding the land he would proceed along the chain of islands, keeping a short distance to the northward, careful never to lose sight of the mountain peaks. As the trapper captain, with his crew of landsmen knew nothing of keeping his craft up to the wind no progress was made unless the wind was absolutely favorable, and thus another season would pass before Atka or Unalaska Island was reached, when the craft was hauled up again for the winter. A term of seven years was frequently consumed in making the round trip to the American coast and back again to Kamchatka or Okhotsk, a voyage that at the present time a schooner can accomplish in about three weeks. At least 75 per cent of all the vessels that sailed upon these voyages from the discovery of the American coast to the beginning of this century suffered wreck, and every one of these disasters could be traced to the ignorance both of captains and sailors.

The arrival at Okhotsk of the two naval officers above referred to forms an epoch in the history of Russian navigation in the north Pacific. They were both young and active and proceeded with great energy in their work of reform, their first voyage from Okhotsk to Kadiak being performed in the unprecedented time of two months in an old vessel of wretched construction and without a single practical sailor in the crew. From that time forward the company always had numbers of naval officers in their employ, and in a few years their vast shipping interest was managed in the most systematic and economical manner.

In the year 1802 the company, through Count Rezanof, petitioned the Emperor for permission to ship supplies to the colonies by sea from

St. Petersburg. The request was at once granted, and a number of naval officers were detailed to navigate two vessels of between 400 and 500 tons burden, purchased by the company in London and named the *Neva* and the *Nadaishda*. The former was commanded by Captain Lissiansky, and the latter by Captain Krusenstern. Rezanof himself was ordered to accompany the expedition in the capacity of Government inspector of the colonies and special ambassador to Japan, and was also invested by the Russian-American Company with the powers of its plenipotentiary agent in the colonies. He sailed on the *Nadaishda* and proceeded directly to Kamchatka on his way to Japan, arriving at Petropavlovsk in July, 1804, after a voyage of nearly a year. The *Neva* arrived at Kadiak at the beginning of the same month. Here learning that Baranof had already left his headquarters for another visit to Sitka, intending to rebuild his settlement and punish the savages, Lissiansky sailed at once for that place, being anxious to assist in the enterprise.

Baranof in the meantime had been delayed at Yakutat, fitting out two small sloops built during the preceding winter. His whole squadron consisted of three vessels, in all considerably under 100 tons burden, with about 40 Russians and several hundred Aleutian hunters, and with this small force he intended to attack the powerful tribes inhabiting the vicinity of Sitka, numbering several thousand warriors; but to his agreeable surprise he found the *Neva* anchored in the roadstead when he arrived at Sitka. He made a formal demand upon the chiefs for restoration of the furs stolen from the warehouse at the time of the massacre and for the surrender of a number of hostages as security for their future conduct. These demands met with prompt refusal and hostilities began. A party of promyshleniks, Aleuts, and sailors from the ship, commanded by Baranof, made an attack upon a large fortified inclosure, but were beaten back with some loss, three sailors and eight promyshleniks being killed and Baranof, Lieutenant Arbuzof, and Midshipman Povalishin wounded. The approach of night prevented further operations, but the following day the ships approached the beach and bombarded the hostile camp. On the next day another attack was made with the same result as before, but during the night following the savages abandoned their fortification and retreated to Chatham Strait. With the assistance of Lissiansky and his men a fortification was erected on a steep, rocky eminence, the present site of the so-called castle in Sitka. Around this nucleus quite an extensive village sprang up within a few months, separated from the adjoining Indian village by a high stockade. Twelve cannon were planted at a point commanding the immediate surroundings as well as the entrance to the bay. As soon as Baranof had firmly established himself in his new position Lissiansky left for Kadiak and there passed the winter; but in the spring he returned, and finally sailed for Canton with a cargo of furs valued at considerably over 1,000,000 rubles.

Rezanof's mission to Japan proved an utter failure, as, after detention in one of the Japanese seaports for ten months, he was coolly informed that he could not see the Emperor. He returned to Kamchatka, and from there proceeded to Kadiak and to Sitka in the year 1805. He turned his attention exclusively to the organization of the colonies and to bringing order and system into the affairs of the Russian-American Company, and was the first to put a check to the indiscriminate slaughter of fur seals on the Pribilof Islands. When Rezanof, in company with Baranof, finally visited Sitka they found the magazines almost empty and famine staring them in the face. At last a ship from

Boston made its appearance in Norfolk Sound and brought much-needed relief. Rezanof bought both ship and cargo and employed the former to bring further assistance. In a few days he was on his way to California, the nearest coast from which grain or flour could be obtained, reaching the Bay of San Francisco, after a long and stormy passage, in so wretched a condition that when the Spanish officers visited the ship Rezanof ordered the crew to be kept out of sight, in order to conceal as far as possible from the strangers the extent of their distress. It was against the colonial laws of Spain to hold any intercourse with foreign vessels, but Rezanof, with the assistance of the missionaries, succeeded in overcoming the scruples of the governor, and filled up his ship with grain, tallow, and meat; and after a stay of several months, during which he engaged himself to marry the daughter of the commandante of San Francisco, he sailed again for Sitka, with the intention of proceeding at once to St. Petersburg, by way of Siberia, in order to ask the Emperor's consent to his marriage with a foreigner.

Rezanof's visit to California was the beginning of commercial intercourse between the Russian and the Spanish colonies, of vital importance to the former.

The chamberlain had, during his sojourn in San Francisco Bay, written to the Emperor and to the directors of the Russian-American Company, submitting plans for the extension of the Russian domain and of the operations of the company in the direction of California. He spoke in glowing terms of the natural resources of the latter country, urging the establishment of an agricultural colony on the coast north of San Francisco, then called New Albion, stating, quite truly, that up to that time the Spaniards had no permanent settlement north of the presidio of San Francisco. With singular foresight he considered the fact that among the hunters and trappers in the Russian colonies it would be impossible to find laborers familiar with agricultural pursuits, and therefore suggested that the "patient and industrious Chinese" should be imported to labor on the Russian plantations, which proposal, made in 1806, is certainly the first on record looking to Chinese immigration to the Pacific Coast.

Before his departure for St. Petersburg Rezanof laid the foundation of a very important change in the management of the company's affairs. Up to that time all employees had been engaged under the old system of allowing shares in the proceeds to all laborers; but Rezanof understood the inconvenience and injustice arising from such a system as the company's operations increased in magnitude, and he left positive orders with Baranof to introduce the payment of annual salaries to all employees as soon as practicable. On his way to St. Petersburg the chamberlain gave orders for the organization of an expedition, consisting of two ships under command of Lieutenants Kfvastof and Davidof, against Japan to avenge the slight put upon Rezanof and his embassy. His instructions were only partially carried out by the two officers named, who thereby involved themselves in the most serious difficulties with the Siberian authorities. From Okhotsk Rezanof proceeded overland through Siberia, but was detained at various places by sickness and once by a fall from his horse; and his injuries, aggravated by disease, caused his death at the town of Krasnoyarsk, in Siberia, on the 1st of March, 1807. With him died the most earnest promoter of Russian interests in the north Pacific.

At the time of Rezanof's departure the chief manager reported that the Russian-American Company then possessed the following fortified stations: One at Three Saints Harbor, one on St. Paul Island, one on

Kadiak Island, one off Afognak Island, one at the entrance to Cooks Inlet (Alexandrovsk), three on the inlet—St. George, St. Paul, and St. Nicholas—and two on Prince William Sound, one of them at Nuchek and the other on Sukluk Island, Zaïkof Bay. In addition to these there was the Fort St. Simeon, near Cape St. Elias; two forts in the Bay of Yakutat, and, finally, New Archangel, in the Bay of Sitka. The fortifications were nearly all armed with 3-pounder brass guns. The number of small arms, rifles, and shotguns in the colonies was about 1,500.

The number of Russian employees was then 470, of which 69 were in the district of Unalaska. Experiments in agriculture had already been made in nearly every section of the colonies, but without success, except in the cultivation of potatoes, turnips, and cabbage. The small breed of Siberian cattle had been successfully introduced at Kadiak.

After the first expedition of the *Neva* and the *Nadaishda* the company continued to send supplies and reenforcements by sea from St. Petersburg. The former ship was fitted out immediately after returning from her first voyage under command of Captain Hagemeister. The presence of naval officers in the colony had led to complications between the chief manager and the former, who were inclined to ignore any suggestions or requests made by a mere "civilian" or "kupetz" (trader). Complaints and charges arising from these difficulties were forwarded to St. Petersburg, and, upon Rezanof's suggestion, the Emperor conferred upon Baranof the rank of "commercial councilor," in order to give him a certain official standing. The commission was accompanied with a gold medal and the order of St. Anne of the third class for distinguished services. Baranof was of course highly gratified at his elevation and the recognition of his services by the Emperor, but his promotion did not save him from endless disputes with Government officers in the colonies, which continued until he left, and embittered his whole after life.

In the meantime the establishment of the Russians on the northwest coast had attracted the attention of American merchants, especially those of Boston, who began to send their ships to Norfolk Sound and to Kadiak, laden chiefly with provisions most acceptable to the Russian colonists. In payment for such supplies they accepted fur-seal skins at the rate of $1.25 (Mexican) each; these being subsequently disposed of in the Chinese seaports at an immense profit. Others entered into an agreement with Baranof to hunt sea otters, with native hunters furnished by him, on equal shares. The field of operations for these enterprises was generally the coasts of California and Oregon.

In the year 1811 Baranof at last carried out Rezanof's suggestion and established himself on the coast a short distance north of San Francisco Bay. His next in command, Kushkof, was dispatched with a number of men, and succeeded in effecting a lodgment at Bodega, where he obtained a tract of land from the Indians "by purchase." The Indians at the time declared that they were entirely independent of the Spaniards, who had never advanced northward from the presidio of San Francisco. The Spanish Crown, as is well known, claimed a title to the whole northwest coast of America by "right of discovery."

At that time Baranof was annually extending his intercourse and joint ventures with the traders from Boston and other American ports. He had close at hand in the seal rookeries of Bering Sea an almost inexhaustible treasury, furnishing the means to pay all demands of his foreign friends without making drafts upon the home office at St. Petersburg. When the Kolosh Indians of Yakutat had destroyed the com-

pany's settlement at that place Baranof employed the Boston captain, Campbell, with his ship, to intimidate the hostile natives into a surrender of a few captive survivors, and during a single year the company's share in sea-otter expeditions, undertaken in partnership with these Yankee skippers, along the California coast, amounted to 200,000 or 300,000 rubles. In many instances, however, these shrewd "partners" managed to secure to themselves the best of the bargain. Once a Captain Bennett sold his cargo of provisions and stores for fur-seal skins at the rate of $1 each, and then sailed across to Kamchatka and sold the skins to the company's agent at Petropavlovsk at $2 each. These and similar transactions were duly reported to the company's home office, accompanied by demands for the appointment of a successor to Baranof, who was represented as a mere plaything in the hands of the foreign traders, who got into his good graces by wining and dining him in their cabins. The peculiar circumstances attending the attempt of Hunt, the agent of Astor, to negotiate with Baranof have been graphically described by Washington Irving in his sketch of Astoria.

The directors of the Russian-American Company became thoroughly alarmed at the reports of the large sums diverted into foreign channels from their own domains, and instructions were promptly forwarded to Baranof to change his policy. This communication was accompanied by the announcement that another ship, the *Suvarof*, commanded by Lieutenant Lazarev, was being fitted for a voyage to the Russian colonies. The vessel sailed from Cronstadt on the 8th of October, 1813, and arrived at Sitka November 14, 1814, having been delayed nearly four months in England waiting for a cargo. She had scarcely been moored at her anchorage when disputes arose between her commander and the chief manager of the colonies, the question of relative rank being of course involved and giving additional bitterness to the contest. Lazarev finally refused point blank to obey Baranof's orders, and sailed from Sitka without final instructions. In his rage Baranof discharged a few of his cannon after the retreating ship, without, however, doing any damage, and Lazarev proceeded to San Francisco, and thence to South American ports, buying up a valuable cargo of the products of the tropical climes, which met with ready sale in Russia. The value of the whole shipment by the *Suvarof*, including the furs, was estimated at considerably over 1,000,000 rubles. In his reports to the Emperor and to the directors of the Russian-American Company Lazarev reported the doings and character of Baranof to his disadvantage, and arrangements were made at last to select a successor.

A Dr. Scheffer had gone out to the colonies in the capacity of surgeon of the *Suvarof*, but during that vessel's stay in the harbor of Sitka the doctor had quarreled with the officers, and finally left the ship and placed himself under the protection of Baranof, the latter taking a great fancy to the foreigner, who could boast of great linguistic ability and a general polish acquired in a life of adventure. Through the medium of the Boston skippers messages and presents had been exchanged between Baranof and King Kamehameha of the Sandwich Islands. Scheffer seized upon this circumstance to work upon Baranof's ambition, and together, inspired by copious draughts of Sandwich Islands rum, they formed the scheme of colonizing and finally annexing those islands to the Russian Empire.

Scheffer was dispatched to the island of Hawaii as diplomatic agent, provided by his ambitious patron with ample means and full powers. He found Kamehameha fully controlled by the English, but, nothing daunted, he proceeded to the island of Kaui, which was then under the

rule of King Tomare, and endeavored to incite the latter to throw off his allegiance to Kamehameha and place himself under the protection of the Emperor of Russia. With the assistance of quite a large force of Aleutian laborers Scheffer erected buildings and planted gardens and fields, the gift of Tomare, whose wife he had succeeded in curing of intermittent fever. This enterprise was maintained for several years, and, upon Baranof's earnest application, the company's authorities endeavored to enlist the Imperial Government in its aid. A magnificent gold-embroidered uniform, a general's chapeau, and some gold and silver medals were forwarded to Tomare from the court of St. Petersburg, but, fully aware of its weakness at sea, the Russian Government refused to go beyond this in support of the company's enterprise. In the meantime English and American intrigue had been active at the court of Kamehameha, who finally took active measures to restore his supremacy over the rebellious Tomare. The latter became alarmed at the nonarrival of Russian reinforcements promised by Scheffer, and at last compelled him to fly from the islands. Two ships belonging to the company's service had been lost while attempting to convey supplies to the Sandwich Islands settlement, and altogether the enterprise was attended with pecuniary loss of such magnitude as to draw upon Baranof the severest censure of the board of directors.

A life of dissipation, old age, and constant struggles with savages and his own scarcely less savage subordinates, as well as the irritating quarrels with Government officers, began to tell upon Baranof's health. Ever since the year 1809, when two promyshleniks, Naplavkof and Popof, had organized a conspiracy to kill Baranof, fit out one of the company's vessels with arms, provisions, and merchandise, and to make their escape to one of the South Sea islands, where they proposed to lead a life of perpetual bliss, the chief manager had given evidence of a broken spirit. The conspiracy was suppressed without bloodshed, one of the members having proved traitor, but its effect upon Baranof's mind could be detected in all his subsequent transactions. Twice the directors of the company had resolved to relieve him; and once, in 1808, they appointed Collegiate Assessor Koch to that position, but he died in Kamchatka before reaching his destination. Seven years later another officer of the civil service, Collegiate Councilor Bornovolokof, was sent out on the ship *Neva*, but the vessel was wrecked within a short distance of Sitka, and Bornovolokof lost his life. At last, in 1817, Captain Hagemeister was sent to Sitka in the ship *Kutuzof*, with instructions to relieve Baranof as chief manager of the colonies. He arrived in the same year, but did not introduce himself in his real capacity. He remained at Sitka inspecting and investigating the company's affairs until the 11th of January, 1818, when he suddenly produced his commission and ordered Baranof to turn over his command to him. The shock of this sudden revelation was too great for the old man, who began to fail more rapidly from that day. With the assistance of a few of his former subordinates he arranged his papers and transferred to Hagemeister both movable and immovable property far exceeding in value the amounts called for by the returns of the company. Though millions had passed through his hands he found himself at the age of 80 a poor man. Very much enfeebled in health, he sailed on the ship *Kutuzof* in the autumn of 1818. For some unexplained reason, Hagemeister, his successor, sailed on the same ship, leaving a Lieutenant Yanovsky in charge of colonial affairs. On the voyage home the *Kutuzof* was detained for some time at Batavia, and, against the advice of the physician, Baranof insisted upon passing that time on

shore, where he was attacked with malarial fever, and with the greatest difficulty was taken on board when the ship was ready to sail. The following day, the 16th of April, 1819, the creator of Russia's domains on the North Pacific breathed his last.

Lieutenant Yanovsky, who had been left in temporary charge of the colonies by Hagemeister, did his best to carry out the wishes of the company concerning a thorough exploration of the territory, and expeditions were sent out by land and sea in various directions, resulting in the discovery and preliminary survey of the coast from Bristol Bay westward to the mouth of the Kuskokvim River and Nunivak Island. One party of explorers even reached the vicinity of Norton Sound, without, however, discovering the Yukon River, the mouth of which must have been passed by the boats of the expedition. Another exploring party proceeded from the mouth of the Nushagak River into the interior, and succeeded in crossing over the mountains and tundras into the valley of the Kuskokvim.

The work of changing the company's system of hiring laborers on shares to the employment of men with fixed salaries was completed by Yanovsky under Hagemeister's direction.

Occasional intercourse was still carried on with the Boston traders, but not on its former scale of magnitude. In 1818 Hagemeister made a contract with a Captain Roquefeuille, who had been fitted out by several merchants of Marseilles for the purpose of opening the northwest coast of America to French trade. Roquefeuille saw at once that he could not compete with the Russian-American Company in opening trade, and therefore made an agreement with the Russian chief manager to hunt sea otters on shares, with the assistance of natives. He received thirty bidarkas (of two men each), under the condition that in case of loss of life or accident during the voyage the French captain was to reimburse the company or the hunters' families, the price of a life being fixed at $100.

Two weeks after leaving Sitka, Roquefeuille's ship was attacked by the Hyda Indians inhabiting the southern end of Prince of Wales Island. He succeeded in beating them off, but a party of his hunters, consisting of twenty men and three women, who had landed some distance from the ship, were butchered by the savages. Roquefeuille made a few attempts to trade with the natives after this agreement, but his goods were of an inferior character, and he failed to secure a single skin. He returned to Sitka, paid for the twenty-three lives lost, and sailed away, and on his arrival at Marseilles convinced his patrons that there was no field for French enterprise in the North Pacific.

The settlement established by Baranof on the coast of California had by no means remained undisturbed. When the Spanish authorities at San Francisco discovered that the Russians had located themselves permanently, they sent an officer with several men with a peremptory demand that the Russians should leave at once a coast claimed by the King of Spain. Kushkof, who was then in command, managed to postpone action in the matter on the plea of having no authority, and in the following year Baranof sent Lieutenant Podushkin to the governor of California with a declaration that the company's colony was located on land purchased of the Indians, and that he could not withdraw it until the courts of St. Petersburg and Madrid had decided the question. At the same time he made proposals for a sea-otter hunt along the California coast on joint account of the Russian-American Company and the California authorities, offering the latter high prices for the skins. The offer was tempting, and, though officially declined, was

privately accepted. The Russians remained undisturbed on their farms at Bodega Bay, and the coffers of the Spanish officials and missionaries began to fill with the bright dollars received in payment for sea otters killed by Innuit hunters in Spanish waters. The principal motive of Rezanof in ordering the establishment of this colony had been to secure a depot of breadstuffs for the northern stations, but in this respect the enterprise proved a failure, owing to the very cause foreseen by the chamberlain.

The Siberians and the Aleuts were but indifferent farmers, and would go off on hunting expeditions just at the time when the ground ought to be plowed or the seed put in, and the consequences were short crops and a demand for supplies from Sitka. In cattle breeding the Arctic farmers met with no better success. Large herds were purchased from the Spaniards, but the Aleut herdsmen were in mortal dread of the huge animals, unlike anything they ever saw at home, and at the least display of unruliness on the part of the cattle they would fly to the station, leaving their trust to the mercy of marauding Indians. Failing in these two objects, the manager of the colony began to experiment in shipbuilding, using the wood of the live oak and cedar covering the hillsides.

The privileges granted the Russian-American Company by the Emperor Paul expired with the year 1820. The business of the country during the preceding twenty years had, on the whole, been very profitable, and the most strenuous efforts were made to get an extension of the privileges for another period of equal length, and owing to the fact that many nobles of high standing, and even members of the imperial family, were shareholders this object was easily attained. The Emperor Alexander I not only extended the old privileges, but made some valuable additions to the rights conferred upon the company by the charter, and in the year 1820 the company reported the payment of a biennial dividend to the shareholders amounting to 1,195,495 rubles, while for the years 1816 and 1817 it had been 1,156,950 rubles.

The population of the colonies under full control of the company (exclusive of the independent native tribes) was given at 391 Russians, 444 creoles, and 8,384 natives.

The fleet owned by the company and engaged in traffic in the colonial waters in the year 1820 consisted of 1 brigantine of 306 tons, 3 brigs of 200 tons, 2 schooners of 120 and 1 of 60 tons; and 3 sloops, 1 of 60 and 2 of 30 tons each. In addition to these the company had purchased 5 foreign barks and ships for the voyage from St. Petersburg to the colonies and 8 others for service in the colonies.

In the year 1821 Hagemeister was relieved by Mikhaïl Ivanovich Muraviev, who continued the work of organization of the colonies and managed the company's trade. Hagemeister urged removal to the island of Kadiak, which offered a much more pleasant and comfortable place of residence than Sitka, but it would have been necessary to maintain quite a large force at the latter place to keep in check the warlike and unruly Kolosh. Up to the year 1823 the district of Atkha had been attached to the Okhotsk office of the Russian-American Company, but the impracticability of such an arrangement became obvious, and all the Aleutian Islands were transferred to the immediate jurisdiction of the chief manager of the colonies, and from that time dates the separate existence and management of Russian America.

The boundary of the Russian possessions was finally settled under Muraviev's administration. The treaty was concluded between Russia and the United States on the 17th day of April, 1824, and with England

on the 28th of February, 1825, designating Prince of Wales Island, in latitude 54° 40′ north, and between longitude 131° and 133° west from Greenwich, as the southern line of the Russian possessions, and as its eastern boundary a line running from the head of Portland Canal northward along the summits of the coast range of mountains to a point where it intersects the fifty-sixth degree of latitude; from thence the line running to the Arctic Ocean along the one hundred and forty-first meridian. Both English and American traders were allowed to trade for a period of ten years in the waters belonging to the strip of coast up to latitude 56°.

The principal explorations undertaken during this period were made in the northern precincts of Bering Sea by two skilled navigators, Etholin and Kromchenko, the former of whom subsequently rose to the rank of chief manager of the colonies. The surveys are still our best authorities for the coast line included in their labors. An Arctic expedition had been organized as early as the year 1815, by Count Rumiantzof, at his own expense. He fitted out the brig *Rurik*, and placed in command Lieutenant Kotzebue, of the navy. The German poet and scientist, Adelbert von Chamisso, accompanied this expedition, which resulted in the discovery and survey of Kotzebue Sound and the Arctic Coast of America as far as Cape Lisburne.

In 1826 Muraviev was relieved by Captain Chistiakof. In this period occurred the exploring voyage of the sloop of war *Seniavin*, commanded by Captain Lütke, who subsequently compiled an atlas of the Alaskan Coast and islands and published a valuable work describing the country.

The work of christianizing the natives of the Russian colonies had been prosecuted with increased vigor since the renewal of the company's privileges in 1821, and in 1823 the priest Mordovsky arrived at Kadiak with two missionary monks. In 1824 Ivan Veniaminof landed at Unalaska, and in the following year Yakof Netzvetof took charge of the church at Atkha. Veniaminof especially was instrumental in spreading the teachings of Christianity over a vast extent of country, visiting not only the Aleutian Islands, but also the coast of the mainland from Bristol Bay westward beyond the Kuskokvim Delta, and in the third year from his arrival the Russian Church in the colonies numbered 10,561 communicants, of whom 8,532 were natives. All the churches and chapels were erected at the expense of the company. The schools at that time numbered but three, located at Sitka, Kadiak, and Unalaska.

After a prosperous administration, during which much valuable information concerning the Russian possessions had been obtained by means of numerous exploring expeditions, Chistiakof was relieved, in 1831, by Baron Wrangell. This was the time when the Hudson Bay Company was most active in extending its operations on the Pacific Coast, and the two vast monopolies were watching each other with suspicion. The English company made several proposals for mutual agreements looking toward uniformity in the management of their intercourse with Indians, but Wrangell had his instructions to crush the dangerous opposition if possible without proceeding to open rupture. His sloops and schooners patrolled the channels of the Alexander Archipelago, with orders to seize all boats belonging to the English. The Hudson Bay Company had stations on the upper course of the Stakhin River, which they were anxious to supply by water, sending ships into the mouth of the river, which was situated in the Russian territory. Wishing to prevent this Wrangell sent Lieutenant Zarenbo

in the brig *Chicagof* to the mouth of the Stakhin River with orders to establish a station. This he did, constructing the Rédoute St. Dionys on the spot where the present Indian village of Wrangell is located. Several boats of the Hudson Bay Company attempting to enter the river were fired upon and turned back. At last the British traders concluded to make the attempt on a larger scale, and fitted out a bark, the *Dryad*, commanded by Captain Ogden, with orders to establish a large fort at the head of tide water on the Stakhin River; but Captain Ogden, finding it impracticable to ascend, returned to Vancouver Island and reported his failure. The matter was duly represented to the directors of the Hudson Bay Company in London, who presented a claim for damages against the Russian-American Company, amounting to £21,500, the alleged expenditure incurred by the company in fitting out the *Dryad*. At this time Baron Wrangell's term of office was about to expire, and he concluded to attend personally to the settlement of this complication. Proceeding to San Francisco in one of the company's vessels, and thence overland through California and Mexico to the capital of that young Republic, he endeavored to settle with the authorities a dispute concerning the Russian title to the Ross colony on Bodega Bay. Without concluding this business, he hurried on to Hamburg, where he met two commissioners of the Hudson Bay Company, including Sir George Simpson, and an amicable arrangement was quickly agreed upon. The terms of this agreement were as follows:

1. The Hudson Bay Company abandoned all claim to the sum of £21,500, the damages for the detention of the vessel.
2. The piece of coast in the Russian possessions from Lynn Canal to the southern boundary was leased to the Hudson Bay Company at an annual rental for a period of ten years dating from the 1st of June, 1840, the Hudson Bay Company to have the exclusive right of trade in the leased territory for the time mentioned, under condition of final surrender of all the buildings and fortifications erected on the lands thus leased.
3. The Hudson Bay Company was obliged to confine its operations to the mainland and not to trade on any island or other portion of the Russian domain.
4. The payment of rental was to be made annually in land otters, to the number of 2,000 skins, representing at the prices of that time 118,000 rubles.
5. In addition to this payment the Hudson Bay Company bound itself to sell annually to the Russian-American Company 2,000 additional sea-otter skins from the Columbia River at 23s. each and 3,000 land-otter skins from Hudson Bay at 32s. each.
6. The Hudson Bay Company bound itself to furnish the Russian-American colony with a certain quantity of provisions, carrying the same on their own vessels at a fixed rate of freight.
7. In case of war the agreement was to be annulled after a notice of three months.

This agreement was approved by both the Russian and the English Governments, and the land in question was surrendered to the Hudson Bay Company. The arrangement was advantageous to the Russian-American Company, who theretofore had maintained their establishment on the Stahkin River at a loss, being unable to compete with the rival company in the interior.

In 1836, after Baron Wrangell's departure, Captain Kuprianof assumed the duties of chief manager of the colonies, and turned his attention chiefly to an extension of the company's business in the northern part of the colonial domains, where, under his predecessor's rule, Lieutenant Tebenkof had in 1835 established the Rédoute St. Michael on Norton Sound. He fitted out the brig *Polyphene*, under command of Captain Kashevarof, for an Arctic exploration, and sailed in July, 1838, succeeding in reaching Point Barrow, not with his ship, but by means of bidars, coasting from Kotzebue Sound eastward. Kuprianof made several voyages to San Francisco, attending personally to the still unsettled question in regard to the company's California colony

and inaugurating proceedings leading to its final sale a few years later. Toward the end of his administration the missionary Veniaminof was called to Irkutsk and consecrated as bishop of the independent diocese of Russian America, which up to that time had been attached to the Episcopal see of Irkutsk, this change involving the erection of a cathedral at Sitka and the subsequent residence of Veniaminof (who on his consecration had assumed the name of Innocentius) at that place. In his new field of labor he devoted himself to the conversion of the savage Kolosh, and, mastering their language, translated several books of the New Testament and some hymns and a catechism. His success in the work of conversion was, however, only temporary, being confined altogether to the time of his presence among them. A seminary for the training of native and creole youths to the priesthood was also established by him and maintained until the bishop's see was finally transferred to Kamchatka.

While the northern seacoast was being surveyed by scientific navigators, such as Lieutenants Tebenkof and Rosenberg, the interior of the country was not neglected. Glazunof and Malakhof penetrated into the recesses of the Yukon and the Kuskokvim valleys; the former ascending the Yukon (then called the Kvikhpak) as far as Nulato, and was the first to make the portage between the Yukon and the Kuskokvim in 1836, while the latter proceeded from the rédoute on the Nushagak River to the Kuskokvim, and thence to Nulato, establishing a station which was subsequently destroyed by the savage natives.

The fortification of St. Michael, established by Tebenkof, was seriously threatened by the natives of Kotzebue Sound in the year 1836. The rédoute was surrounded by a large force during the absence of a small detachment consisting of nine men, with the trader Kuprianof, but the latter, observing the movements of the savages, fought his way through their lines with great bravery and rejoined the garrison, and together they succeeded in repelling all attacks.

One of the most remarkable events that occurred under Kuprianof's administration of the Russian possessions was the appearance of a smallpox epidemic extending from 1836 to 1840, inclusive. The disease first made its appearance in Sitka, November, 1836, and though at that time the company had a resident physician, Dr. Blaschke, at that place all efforts to stay its ravages were in vain. Old and middle-aged people suffered most, attacks in their cases proving nearly always fatal, but among children the mortality was less. The creoles, owing, perhaps, to their more cleanly mode of life, suffered in a minor degree, but the Kolosh, living in filth and misery, were swept away by whole families and inside of three months 400 deaths occurred in the native village of Sitka alone. Only one Russian was attacked during that time, and he recovered. In March, 1837, the disease began to die out. Among the inhabitants of the native settlements on the interior channels of the Alexander Archipelago the mortality was also very great. As soon as navigation opened a station surgeon, Valsky, with three experienced assistants, was dispatched to the district of Kadiak with orders to vaccinate the people, but the precaution came too late, the disease having been evidently carried to Kadiak on the same ship which brought the medical assistants. On the island of Kadiak 736 persons died. On the peninsula of Aliaska one of the assistant surgeons vaccinated 24 persons, and in that vicinity only 27 succumbed to the disease.

Dr. Blaschke was dispatched to Unalaska, where he vaccinated 1,08 natives, and here only 130 died. In the vicinity of the trading post on Cooks Inlet, Prince William Sound, and Bristol Bay the native

refused to submit to vaccination, the consequence being that 550 persons were attacked by the disease, of whom over 200 died. The last cases of smallpox in any portion of the Russian colonies were reported in 1840.

About the end of Baron Wrangell's administration it had become evident that the expenses of the Russian-American Company in maintaining their colonies in northwestern America were increasing to an alarming degree, while the income derived from the fur trade remained stationary, or even decreased in many of its branches. The officers of the company stationed in the colonies reported that one reason for this state of affairs could be found in the fact that hundreds of feeble and superannuated employees were drawing salaries and subsistence without rendering adequate service. These individuals had grown old and lost their health in the employ of the company, and could not well be discharged and thrown upon their own resources; and in order to relieve the company from this burden, to a certain extent, the directors petitioned the Government for permission to pension off the useless employees or to settle them in the most favorable localities as fishermen and tillers of the soil. The proposition was favorably considered by the Government, and a ukase was issued on the 2d of April, 1835, empowering the Russian American Company to locate as permanent settlers such of their employees as had married native or creole women in the colonies, and who, on account of disease or old age, were no longer able to serve the company. Such settlements were to be made only upon written request of the superannuated servants, and the company was obliged to select a piece of ground, build comfortable dwellings, furnish agricultural implements, seed, cattle, and fowls, besides providing the settlers with provisions for one year. These individuals thus located were exempt from taxation and military duty, and a list of their names was to be forwarded annually with the company's report. The children of these settlers could be taken into the company's service upon their own request, at established rates of salary. The company was obliged to purchase all surplus produce of the settlers, and also such furs as they might be able to obtain. The ukase also permitted creoles to enjoy the same privileges after concluding their term of service with the company. The Russian settlers of this class were to be known officially as colonial citizens and the creoles as colonial settlers. As localities best adapted to this purpose the chief manager selected the coast of Cooks Inlet, the island of Afognak, and Spruce Island.

In 1840 Captain Etholin was appointed chief manager of the colonies and found himself face to face with serious difficulties in the management of the native population. The smallpox epidemic had carried off a large percentage of the providers of the native families, and as a consequence whole families and communities were brought to the verge of starvation. On Kadiak and nearly all of the Aleutian Islands it had been the custom of the people to live in small settlements of one or two families each, widely scattered along the coast, and even these small communities wandered frequently from place to place in search of better hunting and fishing grounds. In their isolated condition a large number of these small families or village communities found themselves at the end of the smallpox epidemic in a condition of extreme want and out of reach of assistance from their neighbors. On Kadiak Island alone sixty-five village sites, occupied by a few individuals each, were enumerated. Captain Etholin, acting upon the suggestion of his predecessor, concluded to consolidate the scattered settlements, each hamlet being

unable to provide for its own existence, and to establish large villages, each under the management of a competent chief. The chiefs were to be held responsible for the collection of food supplies at the proper season, and were intrusted with the maintenance of storehouses in which each community deposited surplus provisions in times of plenty, to be issued again in times of want. This measure was energetically carried out, not only at Kadiak, but on the Shumagin and the Aleutian Islands, and its effect was very beneficial.

The second term of the Russian-American Company's special privileges expired in 1841, and the directors and shareholders labored assiduously for a new grant of charter for another twenty years. The Imperial Government took some time to consider the question, but in 1844 a new charter was granted. This document increased the rights and advantages enjoyed by the company, confirmed the establishment of the two classes of colonial citizens and colonial settlers, and enlarged the colonial government by the establishment of a council to consist of the assistant chief manager and two or three naval officers stationed in the colonies, which council was invested with advisory functions only in the management of colonial affairs, but acted in certain emergencies as a court of arbitration between the inhabitants of the colonies and the company's authority.

An extensive exploration of the Yukon and Kuskokvim regions was made under the direction of Etholin. In the month of May, 1842, the brig *Okhotsk* proceeded to St. Michael with Lieutenant Zagoskin, of the navy, and five assistants. After fitting out his expedition with provisions, dogs, and canoes, Zagoskin made several journeys along the coast of Norton Sound, and finally crossed over the hills of the Coast Range into the valley of the Yukon. On the 15th of January, 1843, the expedition reached Nulato, and from here Zagoskin undertook a journey to Kotzebue Sound, but, owing to the desertion of his assistant, failed to accomplish his object and was obliged to return to Nulato. The following spring he constructed a large bidar of six oars, and set out in June upon the journey to the upper river. After advancing more than 100 miles from Nulato the hostile attitude of the natives obliged him to return to the latter place, whence he made his way to Ikogmute, crossing over the tundras to the Kuskokvim. In the beginning of February, 1844, he established himself at the Rédoute Kalmakovsky, making a thorough exploration of the surrounding country, finally returning to St. Michael and thence to Sitka.

Zagoskin subsequently published a voluminous journal of his travels in the basins of the Yukon and Kuskokvim.

At the beginning of his administration Captain Etholin concluded arrangements for the sale of the Ross colony on the coast of California. The imperial permission for this transfer had been obtained some years previously by the directors of the company, who had become convinced that the enterprise had not resulted in any pecuniary advantage. During the occupation of the settlement ten vessels (brigs and schooners) had been constructed of timber cut in the immediate vicinity. The records show that not one of these vessels proved seaworthy for more than six years after construction; but whether this was due to the incapacity of the builders or to the fact that the timber had not been seasoned, it is impossible to decide. There was no lack of skilled mechanics in the settlement, as we have evidence of much work performed by the Russians for their unskilled neighbors in San Francisco Bay, where sailing and row boats were built for the Mexican authorities and private individuals, and even one buggy for the use of a missionary;

but having failed in its principal object of creating a never-failing supply of breadstuffs for the northern stations, the company finally sold the land, with all buildings and live stock, to a native of Switzerland, named Sutter.

Etholin also displayed great energy in establishing new schools and enlarging those already in operation in the various districts of the colonies. Under the active superintendence of his wife a home was founded in Sitka, in which the creole girls were educated, instructed in household duties and female handicraft, and finally provided with a small dowry and married to officers and employees of the company.

The clause in the company's charter requiring that the chief manager should be selected from officers of the navy had an unfortunate effect upon business. After Baranof's departure not a single practical merchant or business man had the management of colonial affairs, and the consequence was that the dividends diminished every year, while at the same time, according to the official reports to the directors and to the Imperial Government, the colonies seemed to be flourishing and developing rapidly. Each succeeding chief manager seemed to think only of making the greatest display of continued explorations, erection of buildings, construction of ships of all sizes, and the establishment of industries and manufactories. The shipyard at Sitka was as complete as any similar establishment in the Russian empire, being provided with all kinds of workshops and magazines, even having brass and iron foundries, machine shops, and nautical-instrument makers. Experiments were made in the manufacture of bricks, woodenware, and even woolen stuffs of material imported from California. For all these enterprises the skilled labor had to be imported from Russia at great expense, and this circumstance alone will explain the failure attending the attempts. Vast sums were also wasted in endeavors to extract the iron from a very inferior grade of ore found in various sections of the country. The only real advantage the company ever reaped from its many workshops at Sitka was the manufacture of agricultural implements for the ignorant and indolent rancheros of California, thousands of plowshares of the very primitive pattern in use in those countries being made at Sitka for the California and Mexican markets. Axes, hatchets, spades, and hoes were also turned out by the industrious workmen of the Sitka shipyard, while the foundry was for some time engaged in casting bells for the Catholic missions on the Pacific Coast. Many of these bells are still in existence and bear witness to the early, though perhaps abnormal, industrial development on our northern coast.

Etholin was, in 1845, relieved by Captain, subsequently Admiral, Tebenkof, to whom we owe the best atlas of the coast of Alaska ever published. The hydrographic notes were very copious and correct, and nearly all subsequent charts and maps have been based upon his surveys. He brought the colonial fleet into a high state of effectiveness, but of the fur trade he knew no more than his immediate predecessors, and as a consequence the shares of the company continued to decline in value. Toward the end of his administration the discovery of gold in California occasioned a sudden revival of business, as for a brief time the Russian possessions in North America were the nearest depot of supplies. A few cargoes of shopworn, unsalable goods that had blocked up the warehouses of the company for decades were disposed of at San Francisco at immense profit, and a lucrative trade was inaugurated in salt fish and lumber. An attempt was also made by the company to engage in mining in California on its own account, an offi-

cial, with a force of Aleutian laborers, being sent to the mines, where he took up a claim, but after obtaining a few ounces of the precious metal his Aleutians left him to take up claims of their own. Finding themselves baffled in this enterprise the directors of the company dispatched an experienced mining engineer, a graduate of the college of mines in St. Petersburg, to Sitka, with orders to prospect for precious minerals in the colonies. This man, Lieutenant Doroshin, began his explorations in 1849. He discovered gold in the vicinity of Cooks Inlet and collected several ounces in dust, but this was the result of the labor of 40 men for nearly a year at great expense; and upon the recommendation of Doroshin these experiments were abandoned.

The existence of coal in the southern portion of the Kenai Peninsula had been known for many years, and occasionally a small quantity of the mineral had been extracted for use in the Sitka shipyard and on the tugboats and small steamers of the company. The discovery of gold in California, however, gave a new impetus to this industry. Experienced miners and engineers were imported from Russia and Germany, and a large force of men was employed in opening the coal veins at English Bay or Grahams Harbor.

The prosecution of this enterprise required a large amount of capital, which the shareholders of the Russian-American Company were unwilling or unable to furnish, but by this time the development of California had created a demand for coal, and it was not difficult to find men willing to engage in such a venture at San Francisco. A company was formed, consisting of several American merchants of San Francisco and the Russian-American Company, represented by their resident agent in San Francisco, Mr. Kostrometinof. Arrangements were made for the shipment of machinery, pump, and hoisting works from the Eastern States, the Russian-American Company furnishing the necessary capital for preliminary expenses. The San Francisco partners of the new firm, which was subsequently named the American-Russian Company, suggested that shipments of ice from Alaska to San Francisco be included in the operations of the firm, and the Russian company began the construction of ice houses and wharves at Sitka, and subsequently on Wood Island, near Kadiak.

In the spring of 1851 Lieutenant Barnard, a member of Captain Collinson's Franklin search expedition, proceeded to Nulato in search of information with regard to the fate of Sir John Franklin, and having traced certain rumors of the presence of white men in the far interior to the Koyukuk tribe, he expressed his determination to send for the principal chief of that tribe, who was then participating in the celebration of an annual festival about 25 miles from Nulato. The chief in question was the most wealthy and influential in the whole region, and being possessed of an exaggerated opinion of his own importance took offense at the English officer's expression. The Russian traders who had lived for years at the isolated station of Nulato and were much at the mercy of the surrounding warlike tribes had always respectfully invited him to the fort whenever they desired his presence. His Indian pride rose at the insult and a council of warriors was called; the shamans were also consulted, and it was finally concluded that all the Indians assembled should proceed to Nulato and demand satisfaction for the alleged insult. At this time a Russian employee of the company, accompanied by one man, arrived on the spot, having been instructed to induce the chief to meet Lieutenant Barnard at Nulato. As soon as his errand was known the man was doomed, and he was approached from behind while seated on his sled and instantly killed with a lance.

The Indian companion of the murdered trader was also killed. Immediately after committing this crime the warriors prepared for action and set out for Nulato. Only half a mile from the trading post was situated the native village of that name, containing about 100 people. The Indian slain by the Koyukuks belonged to this village, and in order to forestall retaliation the invaders surprised the inmates in their houses, killing all with the exception of a few women and children. This was done so quietly that the Russians and their visitor at the station were not aroused. When the bloodthirsty savages finally reached the stockade they found the commander, Deriabin, who had just arisen, sitting behind one of the houses. He was approached stealthily from behind and stabbed in the back, dying immediately without giving the alarm, and over his body the party entered the house where Lieutenant Barnard was reading. At the sight of the infuriated Indians the English officer seized a gun and fired twice without hitting anyone, and a notorious shaman, named Larion by the Russians, then stabbed the lieutenant in the abdomen, inflicting a mortal wound. The Indians next turned their attention to the barracks, where the laborers lived with their native wives, but a few shots fired by the besieged induced them to retreat with the prisoners made in the village. The murderous shaman had been wounded in the mêlée, but managed to make his escape and lived until a few years ago, both feared and hated by whites and Indians, committing many horrible crimes and frequently inciting others to murder. Lieutenant Barnard was buried within a few yards of the stockade of Nulato, and a cross was erected over his grave by Surgeon Adams, royal navy, with the inscription: "Lieut. J. J. Barnard, of Her Majesty's *Enterprise*, killed February 16, 1851, by the Koyukuk Indians.—F. A." The cross has since been painted at various times by traders stationed at Nulato, and the inscription has disappeared. When I visited the spot in the summer of 1880 the simple monument was still standing, with a new coat of sky-blue paint, and to the right and left were two other graves of victims of murderous Indians in the vicinity.

In 1851 Tebenkof was relieved by Captain Rosenberg as chief manager of the colony. The latter continued to carry out the terms of the company's agreement with its San Francisco partners in the coal and ice business, but a suspension of all traffic was threatened by the outbreak of the Crimean war, involving the danger of an attack upon the Russian colonies by English cruisers. As soon as war was declared the representatives of the Russian-American Company and the Hudson Bay Company met in London and drew up a mutual agreement of neutrality as long as the war should last; no armed vessel and no land force larger than was needed for the purpose of local protection was to be maintained in either colony, and intercolonial traffic was to be carried on as usual, with one exception, this concerning the piece of land rented by the Hudson Bay Company from its Russian neighbors. The rental for this was commuted from 2,000 land-otter skins to a fixed sum of £1,500 per annum. The Hudson Bay Company was also temporarily released from its obligation to ship provisions to Sitka on its vessels.

The Russian possessions on the northwest coast of America remained undisturbed throughout the war, though a few ships of the company were captured by English cruisers, one of them, the *Sitka*, falling into the enemy's hands at the end of a successful voyage around the globe, having escaped the notice of all the English squadrons then scouring the oceans, until in the vicinity of the Kamchatka Coast she was hailed by a frigate and obliged to surrender. On the Asiatic Coast several

encounters took place between the Russians and the allied fleet, among them the famous unsuccessful attack of the joint French and English squadrons upon the harbor of Petropavlovsk.

Rosenberg, whose transactions as chief manager were confined within very narrow limits by the war, was relieved in 1854 by Captain Voievodsky, under whose administration the lease of the territory to the Hudson Bay Company was again extended for ten years, upon terms similar to those of the first agreement. In the year 1855 the Kolosh Indians located in the immediate vicinity of Sitka gave evidence of an unruly spirit, and toward the end of the year two savages, who were prevented from stealing wood by a sentry, wounded him with a spear. The chief manager demanded a surrender of the guilty parties, but this demand was met with threats. A few shots were fired from a cannon over the village, but the only effect was a swarming of armed warriors from all the huts and hovels, who rushed upon the fortified inclosure of the settlement and began to cut down the palisade with axes. Fire was then opened upon the savages by all the batteries and blockhouses, and was rapidly returned by the savages. The latter obtained possession of a chapel built of stout logs for the accommodation of the natives and converted it into a stronghold from which they could command with rifles nearly all the Russian batteries. During the first day they did considerable execution in picking off officers and men as they hurried to their stations; but on the following day a regular bombardment of the native village took place, and after two hours the Indians ceased firing, declaring themselves willing to treat. The most profuse professions of friendship for the Russians were made by the savages and good behavior promised for all future time, and after the assailants of the sentry had been surrendered for punishment Voievodsky agreed to pardon the attack. During the action 2 Russians were killed and 19 wounded, the Kolosh losing 60 in killed and wounded. A report of the transaction to the Imperial Government resulted in an expression of thanks by the Emperor to Captain Voievodsky.

Lieutenant Baranof, of the Siberian line battalion stationed at Sitka, who had been wounded, received the order of St. Anne of the fourth class; and one gold and four silver medals, with the inscription "For bravery," were bestowed upon soldiers who had distinguished themselves on the occasion.

The American whalers frequenting Bering Sea previous to entering the Arctic through Bering Strait had frequently been the object of complaint to the Russian Government by the Russian-American Company. It was claimed that these whalers made a practice of landing on the Aleutian Islands to try out blubber, and that the offensive smoke and stench resulting from this operation had the effect of driving away the precious sea otter from the coast. In 1842 Chief Manager Etholin reported that in his tour of inspection throughout the colonies he had encountered several American whalers close inland, but that they refused to answer his questions or to obey his orders to leave Russian waters. Some of the whalers learned that in 1841 fifty ships from New Bedford and Boston had been in the vicinity, and that they had succeeded in capturing from ten to fifteen whales each. From 1842 these complaints concerning the whalers were renewed every year, and during Tebenkof's administration he proposed to the company to go into the whaling business in the waters of Bering Sea and the north Pacific as the best means of keeping out foreigners. His plan was to hunt whales in boats only from the harbors of the Aleutian Islands, and to engage at first a number of American harpooners and steersmen until they and the Aleutians had been sufficiently trained to do the work.

Under the terms of the treaty with England and America no vessel of either of those two nations was allowed to hunt or fish within 3 marine leagues of the shore; but as there was no armed Government craft in the colonies the provisions of the treaty were totally disregarded by the whalers, until at last the company proposed to the Imperial Government that if a cruiser were sent out from Russia to guard the colonial coast against intruders the company would bear the expenses of such a vessel. The Emperor agreed to the proposal, and gave orders to the naval authorities to prepare estimates as to cost and expenditure. In reply a report was received stating that the sum of 270,000 rubles was required to fit out the ship for the cruise, and 85,000 rubles annually for its maintenance. This sum the company found itself unable to pay and the project fell through. At last, in 1852, the corvette *Olivitza* was ordered to the Sea of Okhotsk, and did some service in keeping foreign whalers out of that sea and breaking up their principal station near the Shanta Islands. In the meantime Tebenkof's suggestions concerning the fostering of Russian whaling interests in the Pacific had borne some fruit, a few of the shareholders of the Russian-American Company, together with some shipowners in Finland, concluding to fit out whaling ships in Finland or at Cronstadt and send them around into the waters of Bering Sea and the Arctic beyond the Straits.

A capital of 100,000 rubles was quickly contributed, and active operations began as early as 1849. By order of the Emperor a sum of 20,000 rubles was appropriated from the special fund of the province of Finland to aid in the construction of the first whaling ship, and a sum of 10,000 rubles to be paid the company for the construction of each succeeding ship of the same class. The company also obtained the privilege of importing free of duty all the material necessary for building and fitting out the first twelve ships, and to carry on the business without payment of duties for a period of twelve years. The name of this branch company was "The Russian-Finland Whaling Company," and its charter was approved on the 13th of December, 1850.

The first ship, the *Suomi*, of 500 tons, was built in the port of Åbo, Finland, in the year 1851. The command of the vessel was intrusted to a German captain, Hagshagen; and a crew of 36 men was engaged, which consisted principally of foreigners, among them 3 steersmen, 3 harpooners, and 3 coopers. The whaleboats had been imported from New Bedford. The cruise of the *Suomi* in the Okhotsk Sea in the year 1852–53 was very successful, the catch being 1,500 barrels of oil and 21,400 pounds of whalebone; the cargo was sold on the Sandwich Islands, realizing 88,000 rubles, a sum that covered the price of constructing the vessel and fitting it out, and left a clear profit of 13,000 rubles. Unfortunately the war with England and France broke out about that time and interfered with further operations in this line.

The *Suomi* had sailed for home before the news of the war reached the Sandwich Islands, and consequently knew nothing of the circumstances when she made the first port on the English Coast. The pilot came off and, strange to say, warned the captain of his danger and gave him an opportunity to make his escape to Bremen. The presence of French and English cruisers in the channel made it necessary to sell the ship at Bremen for the comparatively small sum of 21,000 rubles.

The second whale ship dispatched by the new company was the *Turko*, which left for the Okhotsk Sea in 1852, having been fitted out altogether at Åbo. The captain was a German by the name of Schäle, and the crew consisted of 25 Finlanders, many of whom had served on American whaling voyages. A cargo of goods for the Russian-American

Company was also forwarded on this ship; but by various disasters the vessel was delayed and did not arrive at Sitka until late in 1853. Shortly before reaching port a few whales were killed, 150 barrels of oil and 650 pounds of whalebone being secured.

Early in the following spring the ship proceeded to sea under command of the first mate, Sederblom, the captain being disabled by disease. The voyage was very successful, resulting in a catch of 1,700 barrels of oil and 23,000 pounds of whalebone.

During the siege by the Anglo-French fleet the *Turko* was in the harbor of Petropavlovsk, but succeeded in making her escape, discharging her valuable cargo at Kadiak for safe-keeping, and finally reached Sitka, where she remained safely until the end of the war.

The third whale ship dispatched to the North Pacific from Finland was the *Aian*, 540 tons. She was commanded by a Finlander, Captain Enderg, and reached the Sea of Okhotsk in 1854. The catch during the first year was not great, and in the spring of 1855 the naval commander of Kamchatka ordered the captain to land his cargo and to transport the families of officers and soldiers from Petropavlovsk to the *Amoor*, and during this voyage the ship was captured by an English frigate and burned. At the end of the war the whaling company discovered that, though no actual loss had been incurred, the profits of the business were not what they had expected, and the subsequent operations do not seem to have been pushed with energy or vigor.

A few more ships were fitted out, but as soon as they returned with their cargoes of oil and bone they were sold for whatever price they would bring. It was perhaps unfortunate for the interests of the Russian whaling industry in the North Pacific that the company engaged in the business was so closely connected with the Russian-American Company, which was then becoming more deeply embarrassed every year.

Under Captain Voievodsky's administration the affairs of the Russian-American colonies were managed very much in the same way as under his predecessors—with the same extravagant display of colonial government and useless experiments in mining, agriculture, and shipbuilding which characterized the five years immediately preceding the expiration of the third term of the company's privileges. The corporation was deeply in debt, and, though desirous of continuing the business, endeavored to transfer to the Government the expense of maintaining its authority in the colonies. The imperial cabinet was both unwilling and unable to accede to the proposition, as the country had just emerged from a disastrous and expensive war, and thus the grant of another charter was postponed from year to year. In the meantime several Government officers were intrusted with a thorough inspection of the condition of the colonies and the company's affairs. Private Councilor Kostlivtzof and Captain Golovin compiled voluminous reports on the subject, and committees of the imperial senate and ministerium of commerce deliberated upon the vexed questions for years. Their reports were very conflicting, and it seemed next to impossible to reconcile the interests of both the Government and the company by any arrangement the various committees could devise.

Voievodsky had been relieved in 1859 by Captain Furuhelm, but the company refused to select a successor to the latter until the new charter should be granted. In the meantime the first negotiations for a sale of the Russian possessions on the American Coast were inaugurated privately in the year 1864. It is said that the first offer was made to England, although the American Government was approached on the subject early in 1864; but the matter was temporarily dropped on account of the civil war then raging.

With the establishment of peace in the United States the subject was taken up again by the Russian ambassador and Secretary Seward. San Francisco merchants, among them the members of the American-Russian (so called) Ice Company, were among the most active promoters of this scheme, the latter firm expecting to succeed the Russian-American Company in their fur trade and other branches of business. Upon the refusal of the company to appoint a new chief manager the Emperor of Russia had sent out Prince Maksutof, a naval officer of Tartar extraction, who administered the colonies under the title of military governor. He was, however, subsequently invested by the American-Russian Company with the powers of a plenipotentiary agent, and finally assumed the whole management of its affairs in winding up the general business and transferring its property.

In 1865 the managers of the Western Union Telegraph Company conceived a plan for constructing a line of telegraph to connect the New World and the Old by means of a cable via Bering Strait. The project was first directed by Mr. P. McD. Collins, who obtained the necessary charters from the British and Russian Governments. Colonel Bulkley, of the United States Army, was appointed chief engineer of the enterprise, and, after making arrangements for work in British Columbia, went to Sitka in the United States steamer *Shubrick*, which had been placed at the service of the Western Union Company by the Government. Here Colonel Bulkley found his advent quite unexpected, but the governor, Prince Maksutof, expressed readiness to afford every assistance in his power, giving the assurance that the natives would be friendly to the enterprise if properly approached. Some of the Thlinket chiefs were then at Sitka, but Maksutof thought it best to defer negotiations, probably because he had no instructions from his Government. During the same year, in the month of July, an exploring party of the telegraph company, commanded by Robert Kennicott, was landed at St. Michael, Norton Sound, by the bark *Golden Gate*, belonging to the Western Union Telegraph Company. The party was provided with a small stern-wheel steamer, the *Wilder*. Mr. Kennicott had previously explored the headwaters of the Yukon in connection with a journey through British North America, but the other members of the expedition were new to the country, though they have since become most intimately connected with scientific and mercantile enterprises in the Territory. Among them may be mentioned Mr. Ketcham, Mr. Whimper (artist), Mr. William H. Dall, Mr. F. M. Smith, and Mr. Francis, the engineer of the little steamer. Preparatory arrangements for the work of constructing a telegraph line began at once, with the assistance of Stephanof, who was then the Russian commander at St. Michael.

During the winter a portion of the telegraph party proceeded up the Yukon River and located at Nulato. The winter was passed in active explorations, but the approach of spring was marked by a sad calamity: The talented and energetic director of the Western Union scientific corps, Robert Kennicott, was found dead on the bank of the river on the 13th of May, 1866. On the day before he had saved the life of a Russian whose canoe had been caught between cakes of ice. In the morning he was missing at breakfast, and his friends, becoming alarmed, searched and found him lying dead about half a mile from the fort, an open compass lying near him, and figures in the sand showed that he was making a calculation at the moment of his death. He had been suffering from heart disease, aggravated by exposure and anxiety.

Mr. William H. Dall was subsequently appointed Kennicott's successor, and the explorations were continued by him alone. The comple-

tion of the transatlantic cable put an end to the enterprise as far as the Western Union Company was concerned, and all its various detachments already in the field in the wilds of Alaska and Siberia were recalled at once.

In the same year (1866) the legislature of Washington Territory forwarded a petition to Washington requesting the United States Government to obtain from the Emperor of Russia such rights and privileges as would enable American fishing vessels to visit the ports and harbors of the Russian possessions. As negotiations for the purchase of the territory were already in progress no further notice was taken of this special request.

Early in 1867 a surveying party, under command of Prof. George Davidson, United States Coast Survey, was dispatched from San Francisco by the United States steamer *Lincoln*, arriving at Sitka August 11 and returning late in November.

After long debates in Congress, both in the Senate and House of Representatives, still fresh in our memory, the treaty with Russia for the cession of the present Territory of Alaska to the United States was finally passed and the necessary appropriation of $7,200,000 made. The opposition to the measure was strong and fierce, and its success was almost wholly due to the efforts of Secretary Seward and Senator Sumner.

In the month of May, 1867, the treaty was signed, and on the 18th of October of the same year the ceremony of final transfer of the territory took place at Sitka. Both American and Russian troops were drawn up in line, General Rousseau acting as commissioner for the United States, Prince Maksutof occupying the same position for the Russian Government. With the roll of drums and the discharge of musketry the imperial eagle of Russia descended and the Stars and Stripes rose into the murky atmosphere of an Alaskan autumn day. The Princess Maksutof wept at the spectacle, and all nature seemed to keep her company, drenching to the skin all the participants in the ceremony. The native Indians in their canoes witnessed it from a distance, listening stolidly to the booming of cannon and gazing with indifference upon the descending and ascending flags. Of the nature of the proceedings they had a faint and imperfect conception, but one thing they did realize—that the country they once imagined their own was now being transferred to a strange people by what must have appeared to them a singular ceremony.

The new acquisition was looked upon as an "Indian country," and a military commander was placed in charge, Gen. Jefferson C. Davis being appointed commander of the new department, with headquarters at Sitka. The garrison consisted of one company of artillery and one company of infantry, numbering together perhaps 250 men.

A number of business men had accompanied or preceded the commissioners of the two Governments, and the American flag was scarcely floating from the top of the flagstaff before new shops were opened, vacant lots covered with the framework of shanties, and negotiations entered into for the purchase of houses, furs, and other property of the old Russian company, and in less than a week new stores had been erected, and two tenpin alleys, two drinking saloons, and a restaurant were opened.

Sitka, the town that for two-thirds of a century had known nothing beyond the dull, unchanging routine of labor and a scanty supply of necessaries at prices fixed by a corporate body 8,000 or 10,000 miles away, was profoundly startled even by this small ripple of innovation.

To the new American domain flocked a herd of men of all sorts and conditions—Alaskan pioneers and squatters and aspirants for political honors and emoluments in the new territory. Before the first sunset gun was fired preemption stakes dotted the ground, and the air was full of rumors of framing a "city charter," creating laws and remunerative offices; and it was not long before an election was held for town officers, at which over 100 votes were polled for nearly as many candidates. The Russian population looked with wonder upon this new activity. The families of the higher officials, as well as those of the farmer and laboring classes, opened their houses to the newcomers with true Russian hospitality; but, unfortunately, they did not discriminate, treating officers, merchants, and soldiers alike, and in many instances their kindness was shamefully abused. Robberies and assaults were the order of the day, or rather of the night, until the peaceable inhabitants were compelled to lock their doors at nightfall, not daring to move about until the bugles sounded in the morning.

A number of representatives of wealthy firms and corporations had started upon a race from San Francisco or the Sandwich Islands to secure the property and good will of the Russian-American Company. Mr. H. M. Hutchinson, representative of the firm of Hutchinson, Kohl & Co., was the successful competitor, he having completed his bargain with Prince Maksutof even before the agent of the American-Russian or Ice Company, the previous partners of the Russians, had been able to present his claims.

The Russian-American Company was allowed two years in which to settle its affairs and to transport all the Russian subjects who wished to return. For this purpose all its employees distributed through the territory were collected at Sitka, and from the time of the transfer to 1869 nearly 1,000 of them were living there; and to these between $40,000 and $50,000 were paid every month as salaries, which, being regularly spent before the next pay day, made business decidedly brisk. In addition to these Russians there were two companies of soldiers and a few hundred American and other traders, while a man-of-war and a revenue cutter were always in the harbor, yielding a golden harvest to business men and saloon keepers. At this time high hopes of Alaska's future prosperity were entertained. The Western Union Telegraph enterprise, before its abandonment, had pushed its wires to British Columbia, to Fort Stager, on the Skeena River, in latitude 53° 30′. This brought the telegraph within 350 miles of Sitka, but at present the nearest telegraph office is at Victoria, Vancouver Island, 900 miles away.

Difficulties with the Indians in southeastern Alaska began at an early day under the new government. The last acts of hostility committed by the Kolosh of that vicinity had occurred in 1864, when an English vessel called the *Royal Charlie* was boarded by the Kekh Indians and the entire crew slaughtered. The Russian authorities took no notice of the affair whatever, because the English craft had no right to trade in those waters, and the offenders remained unpunished.

In December, 1867, the first trouble occurred at Sitka. A sentry of the garrison observed some Indians after nightfall with a light in the vicinity of the powder magazine, and, hailing them without receiving an answer, he fired, wounding one of the number. The remainder decamped, but the next day a demand was made by the chief for compensation for the injuries sustained by the wounded man. General Davis refused to comply with the request, whereupon the chief returned to the village and hoisted the English flag. Davis sent a messenger

to notify the chief that if the foreign flag was not removed by daylight on the following day he would bombard the village, and when day dawned the rays of the sun illuminated the Stars and Stripes in place of the cross of St. George; but the Indians were surly for some time after the occurrence, threatening an outbreak occasionally.

As early as the 1st of March, 1868, a newspaper appeared in San Francisco under the name of the Alaska Herald. It was published by a runaway monk of the Greek Church, who had never seen Alaska, but who imagined that he was called upon to declare himself a champion of the former Russian possessions. A few columns of this sheet were published in the Russian language, and the most absurd proclamations addressed to the people of Alaska were circulated among its readers, and for some time its publisher succeeded in sowing the seeds of discord and dissatisfaction among the new Russian-speaking citizens of the United States by telling them that as Americans they were all entitled at once to 160 acres of land, and that they must not labor for less compensation than $5 a day in gold, declaring with the greatest effrontery that the Constitution of the United States so provided.

In the meantime military garrisons were dispatched to other points in the territory and located among peaceable tribes, where even the first discoverers had never found it necessary to make a display of force. A battery of artillery was stationed on the island of Kadiak, and another command from the same regiment sailed from Washington Territory in June, 1868, to establish a military post on Cooks Inlet. The spot to be selected had not been definitely indicated on the charts, and while attempting to find the proper place a ship was wrecked upon a rock on July 16, at the mouth of what is now called English Bay or Grahams Harbor; no lives were lost, but nothing else was saved. After suffering much hardship the wrecked soldiers were rescued in the month of August by the steamer *Fideliter* and taken to Kadiak. For many years following the natives of the vicinity had ample supplies of military clothing, rifles, and other stores cast up by the sea.

The first American vessel that visited the seal islands was owned by the firm of Williams & Haven, of New London. The agent and commander landed on St. Paul Island on the 13th of April, 1868, and on the 2d of September sailed for the Sandwich Islands with a rich cargo of seal skins. Disputes arose between this party and the agent of the successors to the Russian-American Company, and the Government found it necessary to station Treasury agents on the island to preserve order and prevent, if possible, an indiscriminate slaughter of seals.

In February, 1868, the first detachment of Russians homeward bound left Sitka, numbering 200, on the ship *Tsaritza*.

The Indians of the upper Yukon River and in the vicinity of Nulato gave indications of hostile spirit at the beginning of the year 1868. The epidemic pneumonia was prevalent among them, and their shamans declared to the people that the disease had been imported and spread by the white men. The Rédoute Nulato had previously been the scene of bloody encounters, as in 1851, when Lieutenant Barnard, royal navy, one of the members of the Franklin search expedition, was killed, as before described. Several murders occurred among these Indians during the first year of American possession, but the white traders were not attacked, though frequently threatened. In the meantime the military authorities at Sitka continued to have difficulty in the immediate vicinity. It is the time-honored custom of the Thlinket to demand payment in money or goods for the death or injury of a member of the tribe, and failing to receive the desired equivalent they retaliate with violence.

On the 1st of January, 1869, the chief of the Chilkhat tribe was on a visit to Sitka with sixty or seventy of his warriors, and paid his respects to General Davis, who made him a present of a few bottles of whisky. The American commander had adopted from the Russians the rule of allowing no Indian inside of the palisades surrounding the settlement between sunset and sunrise. On that day the visitors began to feel the influence of the whisky, and both the Sitka and the Chilkhat chiefs refused to retire, and snatched the gun from the sentry who endeavored to enforce the order. The Sitka chief was immediately arrested, but on attempting to seize the other chief the soldiers were met by an armed body of Indians, and in the mêlée the Sitka chief was knocked down and one of the soldiers was wounded, when both parties retreated. On the following morning the Sitkans came to the fort with a flag of truce, requesting an audience with General Davis, declaring that they desired peace and protection. A messenger was sent to demand the immediate surrender of the Chilkhat chief, and, when he refused to come, orders were given to shell the house in which he was staying. The troops were all under arms, guns double shotted, and citizens prepared for defense. The vessels of war in the harbor had orders to prevent the escape of Indians from the village, but during the following forenoon several canoes put off from the beach and were fired into from the *Saginaw*. One canoe was sunk and three of the inmates killed, one belonging to the Sitka, one to the Chilkhat, and one to the Kehk tribe. Obtaining no payment, the Kehks killed two white men, prospectors, who had ventured into their country. At the same time a small schooner, the *Louisa Downs*, was wrecked in one of the interior channels, and it was reported that the whole crew had been massacred. General Davis placed a company of troops on board of the United States steamer *Saginaw* and started from Sitka on the 11th of February. The first village was found to be deserted by all the inhabitants with the exception of one squaw, and the houses were laid in ashes and everything of value destroyed. Subsequently two other villages were found alike deserted and were treated in a similar manner. Not a hostile warrior was seen. Some time later it was discovered that the shipwrecked crew had not been killed, but rescued by these savages and treated kindly. The return to Sitka was delayed only through fear of the natives caused by the bloodless campaign narrated above.

In the month of July of the same year the Chilkat Indians, who had still a life to their credit on account of the trouble in Sitka in the month of January, boarded a small trading vessel and demanded a life or money. A written guaranty for the settlement of the claim was given and the matter reported to the commanding officer at Sitka, who, however, refused to have anything to do with it. Upon this the trader who had given the security paid the claim, thus securing peace to the country, and after this the Indians submitted to the general's demands.

On the 29th of April, 1869, the first number of the Sitka Times was published at Sitka by T. G. Murphy, who combined the avocations of tailor, lawyer, and editor. The little sheet was the organ of an aspirant for gubernatorial honors, through whose efforts the city government was organized in Sitka, with W. S. Dodge as mayor. The new government labored under difficulties, being confronted at every step with military orders threatening arrest and confinement in the guardhouse. A truce between the contending powers was observed during the visit of Secretary Seward in the month of July, 1869, who came to view the purchase so intimately connected with his name. Congratulatory

speeches were exchanged between Mr. Seward, the military commander, and the "mayor and the board of aldermen." But the Russian Church was robbed of some richly-jeweled paraphernalia of worship, and minor thefts were of common occurrence. Among the officers wordy disputes were frequent, and one duel was fought with fatal result.

General Thomas, who was then in command of the military division of the Pacific, made a tour of inspection throughout the Territory, and after careful investigation of the state of affairs deemed it wise to abandon all military posts in Alaska with the exception of that at Sitka.

The year was not to end, however, without additional difficulty with the Indians of southeastern Alaska. An occurrence took place at Fort Wrangell which delayed the abandonment of that post for some time. Some white miners passing the winter at that place had sold liquor to the Indians about the fort, and one of the drunken savages beat his squaw until the blood rushed from her mouth. The post trader, Leon Smith, interfered and had the woman carried into the house of one of the laundresses of the garrison. The brutal husband then feigned regret for the ill treatment of his wife, and offered to shake the hands of the laundress who had protected her. During this friendly ceremony he suddenly seized one of the woman's fingers in his mouth and bit it off, and then fled for the Indian village. A detachment of soldiers was sent to arrest him, but the Indians displayed considerable hostility. The trader Smith then set out for the village, hoping to pacify the savages, but after advancing a few steps he was shot down. After considerable delay, and bombardment of the Indian village from the garrison, the murderer was delivered, tried by court-martial, and hanged, the chief of the tribe acquiescing in the sentence.

In the spring of 1870 another murder was committed at Sitka by a soldier who had been dishonorably discharged. This man, William Bird, had a grudge against the commander of his company, and meeting him in a saloon he drew his pistol threatening to kill him. The officer struck at Bird and pushed him out of the door; the man then fired through the door, instantly killing a lieutenant of the Revenue Service who happened to be standing in range. The murderer, though threatened with mob law, was secured by the guards and subsequently repeatedly tried in military and civil courts at Sitka, Portland, Oreg., and San Francisco, but was finally released on account of conflicting rulings concerning jurisdiction.

In the summer of 1870 the organ of the tailor journalist was removed from Sitka to Seattle, Wash., and shortly after passed out of existence. This event, unimportant as it seemed in itself, marks the end of the brief period of sudden rise and fall of commercial prosperity in Sitka. The causes instrumental in creating a temporary bustle and hopeful feeling in business circles have been explained above; but when one ship after another took the Russians away to their native country the flow of cash from their pockets ceased; the garrison was being continually reduced in numbers, and in 1870 business was dead. There remained about 60 soldiers, about 200 Russian half-breeds of the lowest order, and a few Americans, and the town which had once held nearly a thousand Russians, the governor with a large retinue of officers and officials, a bishop with his train of priests, and which then was the scene of gay society life, was now almost deserted. The people who had been so sanguine of success, saying that the fisheries, the fur trade, the timber, and the minerals needed but American enterprise to yield fortunes, had been singularly blind as to the real cause of this spasmodic prosperity

of Sitka, and but few could understand that the resources of a northern country are few and slow to develop.

During the year 1870 the western military garrisons were withdrawn, and the substantial buildings erected at great expense of labor and money were abandoned. It would be difficult to point to a single benefit conferred upon the people of those regions by the temporary sojourn among them of the military forces. A small detachment of soldiers had also been stationed on the seal islands to enforce such regulations as had then been promulgated by the Treasury Department for the protection of both sealers and seals. This measure benefited only the soldiers themselves, who were employed by the traders in killing and skinning the seals, and in this way assisted in the threatened extermination rather than in the protection of these animals. Fortunately for the existence of the valuable fur-seal industry, the Government about this time hit upon the only practical plan to preserve the animals from destruction. The islands were declared a Treasury reservation, and by an act of Congress approved July 1, 1870, the islands of St. Paul and St. George were leased for a term of twenty years to a corporate company. The lease was awarded to the highest bidder, the Alaska Commercial Company, located at San Francisco; and since that time all danger of extermination or a decrease in the number of the seals has been averted, and, in fact, at present a steady, gradual increase can be observed.

During the brief period of prosperity, between September, 1867, and August, 1869, the arrivals of vessels at Sitka were 71, with an aggregate tonnage of 13,339, the departures during the same time being 67, with an aggregate tonnage of 12,371; but from that time forward the shipping of the port was confined almost entirely to the monthly mail steamer, the only means of communication between Sitka and Washington Territory, and all intercourse between Sitka and the western portion of Alaska was absolutely at an end.

In 1872 another difficulty with the Sitka Indians occurred, originating in a fight between a soldier and an Indian. In the fracas ensuing three Indians were wounded and an attack upon the garrison was threatened. The affair was settled, however, without additional bloodshed. The garrisons at Sitka and Wrangell are still maintained, but on the 5th of February, 1873, the last mayor of Sitka, George A. Edes, resigned, and the "council" held its last meeting on February 18 of the same year. As the functions of these officers had been exceedingly limited, no social revolution followed this event, and matters went on much as usual under military rule.

In the beginning of the year 1874 the garrison at Wrangell was withdrawn, but owing to disorder among the natives it was reestablished the following year.

In the year 1874 an attempt was also made to colonize Alaska with Icelanders, who were then leaving their own country in large numbers, and two of these people were taken to Alaska on a United States man-of-war, and given every opportunity to view the country. They were pleased with what they saw, declaring that the Kadiak Archipelago and the coast of Cooks Inlet were far superior in natural resources to their former home, but before their favorable report was in the hands of the Government their people had found more pleasant homes in the Western States and in the British possessions. The Alaska Commercial Company at that time offered to transport a colony of 500 Icelanders to any portion of Alaska free of charge, but unfortunately the offer was not accepted, and the opportunity of securing additional permanent

population for at least some portions of Alaska passed by. During the same year four miners from the Cassiar "diggings," in British Columbia, made their way to the headwaters of the Yukon, and descended that stream. They discovered small "prospects" of gold in a few localities, but found it more profitable to engage in the fur trade, in which pursuit they still continue.

During the years following several bills were introduced in Congress looking to the establishment of some sort of civil authority in Alaska, one of them being to make it a county of Washington Territory, and another to annex the country to Washington Territory altogether. All the various measures proposed fell through without action on the part of Congress until 1877, when the troops were finally withdrawn.

In 1878 the Sitka Indians began to comport themselves in the most insolent manner, defacing the graves in the Russian cemetery, pulling down the stockade separating the town from the Indian settlement, and committing other similar outrages. At that time not even a revenue cutter was present in the harbor, and the inhabitants, becoming very much alarmed, sent an appeal for immediate protection to the commander of an English man-of-war in the harbor of Victoria. The assistance was promptly rendered, just in time, it was claimed, to prevent disaster; opinions on that subject were, however, divided. In due time the English man-of-war was relieved by a similar vessel of the United States Navy, and since that time a vessel of that class has been constantly stationed in the harbor of Sitka, affording protection and assisting the inhabitants of southeastern Alaska in various ways.

Ledges of gold-bearing quartz had been discovered in the vicinity of Sitka before the removal of the troops, but considerable difficulty was encountered in securing the necessary capital to open the mines; but finally some capitalists in Portland, Oreg., formed a company, and for a time the prospects of Sitka were once more brightened. A stamp mill was erected, but, though numbers of other claims were located and opened, the ore existing here was found to be of a very low grade, and would not even pay for the most economical mode of working. For years the enterprise was kept up in the constant hope of "strikes" of better ore, but at present the Sitka quartz mines are practically abandoned. On the coast of the mainland in the vicinity of Wrangell a surface-mining camp of small extent has been in existence for several years, yielding a small profit to two or three proprietors of the claims. The most promising discovery of the kind was made at the end of the season of 1880 on the coast between Takoo and Chilkhat inlets. The gold found here is said to exist both on the surface and in quartz veins, and rich specimens were forwarded to Portland and San Francisco, resulting in a rush of miners and speculators during the spring of 1881, and a town sprang up which has boasted of three names during its brief existence—Harrisburg, Rockville, and Juneau City. The mail service was extended to this place, and shipments of bullion were actually made, the exact value of which can not be ascertained. Of the value of this discovery it is impossible to judge at such an early date, but upon its success depends the development of at least this section of Alaska in the immediate future. In the meantime, in the absence of all legislation on the subject, Alaska remains as it has been, an abnormal appendage to our States and Territories—not a Territory even in name—only a district for the collection of customs.

CHAPTER V.—NOTES ON ALASKAN ETHNOLOGY.

The native tribes of Alaska offer a vast field for the labors of students of North American ethnology. Thus far they have only been roughly grouped in families and tribes by various writers, many of whom, possessing no personal knowledge of the subject, have built up theories from the notes of incompetent and casual observers. As an instance of this we may cite that casual remarks of travelers on the facial similarity existing between certain Aleutian individuals and the Japanese resulted in the positive and reiterated assertion by scientific writers that the former migrated to their present homes from eastern Asia—a theory now thoroughly exploded by recent authorities.

Our knowledge of the distribution and classification of the tribes in the extreme northwest is still very limited, and years of careful investigation will be required to enable us to arrive at any satisfactory result and to attain to any degree of accuracy. Some fragmentary ethnological material from Russian America has been furnished in times past by Russian and German writers; Veniaminof, Davidof, Zagoskin, Wehrman, Baer, Wrangell, Holmberg, and others have given to the scientific world valuable contributions on this subject. Veniaminof (who died but a few years ago in Moscow as the metropolite or primate of the Russian Church) was one of the most reliable and painstaking investigators, but his personal observations were limited to the Aleutian Islands and the Alexander Archipelago. Davidof, an officer of the Russian navy, visited the island of Kadiak and the adjoining continental coasts at the beginning of the present century, and Holmberg also devoted himself chiefly to the Kadiak and Sitka districts. To L. Zagoskin, a lieutenant of the Russian navy, we owe our first definite knowledge of the tribes of Norton Sound and the Lower Yukon region. Another naval officer, Lieutenant Wehrman, compiled in 1857 the first map showing in colors the distribution of native tribes in Russian America, a map quite accurate in its main features. Next in order is the manuscript map, also in colors, compiled by Dr. George Gibbs from information obtained from the Russian authorities at Sitka.

Since the purchase of Alaska by the United States the most valuable contributions to its ethnology thus far published have come from the pen of Mr. William H. Dall, of the United States Coast and Geodetic Survey, who also compiled a map in colors, which was printed with Volume I of Contributions to North American Ethnology. A vast amount of ethnological material relating chiefly to the Yukon Basin in the extreme northwest has been collected by Mr. E. W. Nelson, of the United States Signal Service; but this has not yet been given to the public. During repeated and extended journeys in Alaska I have been enabled to glean some fragmentary knowledge of this subject; but until intelligent investigation can be extended systematically over all sections of Alaska, and the results carefully compared and sifted, the work can not be looked upon as complete.

All that can be done at present in the way of classifying the natives of Alaska is to divide them into four distinct families or tribes, whose habitat and boundaries can be defined with a certain degree of accuracy, subject to future corrections. The numerous subdivisions of each family (based chiefly upon dialectic differentiation) can only be vaguely indicated, in the hope of furnishing to future investigators a framework upon which to build a more satisfactory structure.

A comparison of the ethnological map published with this report with those previously compiled at various times will show the gradual acquisition of knowledge on this subject. The differences between the latest map and the one preceding (compiled by Mr. William H. Dall) are slight, and give evidence only of an extension of the field of investigation. This result is all the more gratifying because Mr. Dall and myself have arrived at very similar conclusions through entirely different channels, and without consultation upon the subject. The crude groundwork accomplished earlier by Russian and other writers was, of course, equally accessible to both of us, giving to a certain extent a common base to start from.

The four families or groups now distinguished in Alaska are the Eskimo (or Innuit), the Aleut (Oonángan), the Thlinket, and the Athabaskan (or Tinneh). The first three named occupy the whole coast of Alaska, forming as it were a barrier between the Athabaskan in the interior and the seacoast, except in one instance, where the latter people have succeeded in supplanting the Eskimo on the shores of Cooks Inlet. The evidence in favor of ascribing to the Eskimo and to the Aleut a common origin is quite strong, but time and circumstances have wrought such changes in both physical and linguistic features of the Aleut tribes that a distinct classification appears justifiable. For the purposes of this report I have adopted the terms Eskimo and Athabaskan, in lieu of the Innuit and Tinneh of recent writers, purely in the interest of uniformity, and in deference to the action of both the American and British science associations, which have decided that priority must prevail, and that the name first given to a race or tribe in scientific classification must be retained. The terms Innuit and Tinneh represent words in their respective languages, and as such I should prefer them, but I am quite willing to bring a sacrifice upon the altar of uniformity in the work of science. In taking leave of these terms, therefore, I will only mention that *Innuit* was derived from a root signifying *man*, and existing in a majority of the Eskimo dialects. I find this root as *innūk*, *niūk*, *yūk*, *yūt*, *liūt*, and *liūk;* the plural being generally formed in *üng* or *üin*, with a collective form ending in *t*, meaning *people*. It has been suggested that the word *īna*, which signifies *house*, *dwelling*, in nearly all the dialects, has been blended with this root in order to describe a people living in houses, or a settled tribe; but in view of the nomadic habits of the Eskimo this theory is open to doubt. In the dialect of the easternmost Eskimo tribe on the Pacific Coast, the Chugachimute, *īna* designates a *house*, but the word for *people* is *shuït* or *shvït* (from *shiūk*, *man*). Zagoskin, whose observations extended over several years, stated that after much questioning of various individuals he arrived at the conclusion that *yugguit* or *yughuït* was a collective or plural of *man* with the Norton Sound tribes, and that *kangyulit*, *kaniulit*, or *ngyulit* was the general name of all the coast people from the Arctic to the Aliaska peninsula, and that this term signified *people of one language*. The only evidence in our possession confirmatory of this assertion of Zagoskin is the name of Kangmali Innuïn, reported by Richardson, and used by Dall as applying to certain tribes on the Arctic coast; to which we may add the fact that with the Bristol Bay and Togiak Eskimo the word *kang* means *the same*. Zagoskin also gives the word *kangakhtuik*, *to speak*.

The word Tinneh in various forms signifies *man* in a majority of the dialects of Alaska, and I find it in the form of *tinné*, *tinne*, *tenna*, *tynnai*, *kinna*, and in the collective *kokhtane*, *khotana*, and *ahtena*.

In discussing these four families or tribes I shall proceed without reference to their relative importance, beginning with the Eskimo.

I.—The Eskimo (or Innuit).

The Eskimo or Innuit, numbering nearly 18,000, inhabit the whole coast line of Alaska west of the one hundred and forty-first meridian, with the exception of the northern part of Cooks Inlet, that portion of the Aliaskan peninsula lying west of the one hundred and fifty-seventh meridian, and the Shumagin and Aleutian groups of islands. The origin of the Alaskan Eskimo has been discussed by various authors, most recently by Mr. William H. Dall in Volume I, Contributions to North American Ethnology, but the only tangible result of such discussion has been the establishment of a general belief that these tribes are of American origin, and that their appearance on the Alaskan coast probably occurred at the same time with the general migration resulting in the settlement of the inhospitable regions where are now found the eastern or Greenland Eskimo.

For reasons elsewhere explained more at length it appears improbable that the settlement of the Alaskan coast and the islands by the Eskimo could have been effected without the aid of the kaiak or skin canoe, or at least a craft of similar construction, and consequently it may be presumed that they spread gradually to the westward and southward after having reached the Arctic shore from their original habitations in the interior of our continent; for the present, however, I have nothing to do with this question, the discussion of which rests chiefly upon speculation, and therefore turn to a description of the tribes of Eskimo stock now found in Alaska.

All the Eskimo tribes, without exception, manufacture and use the covered skin canoe known as the kaiak, identical with that of the eastern or Greenland Eskimo; and this feature is so distinctive and exclusive that a tribal name might justly be based upon it should the necessity arise for another. At present I know of only one instance where an intermixture of the Innuit with another tribe has taken place under such circumstances that the foreign element has gained the upper hand, and there they have already abandoned the manufacture of the kaiak and apparently forgotten the art of its construction. I refer to the Oughalakhmute, who have mixed with the Thlinket. The open skin boat, the *oomiak*, or women's boat, also known as *bidar*, is used by certain tribes on the north coast of Asia; but the kaiak proper is only found among the Eskimo.

When the Russians first observed this craft they applied to it the name of *bidarka*, a diminutive of bidar, a Kamchatkan term for an open skin-boat. This term is now used throughout Alaska wherever Russian influence once predominated, and the same word has been incorporated into several Eskimo dialects in the form of *bidali*, which is, however, applied only to two and three hatch kaiaks—a variety formerly known only on the Aleutian Islands, and adopted by the Russians for greater convenience in hunting and traveling. From Bristol Bay westward and northward the kaiak and the oomiak only are used.

The subdivisions thus far made of the Eskimo tribe inhabiting the Arctic Coast are based almost wholly upon locality and dialectic differentiation, as reported by traders and whalers who come in contact with them; but for the purpose of classification it would seem sufficient to here use the term Arctic Coast tribes as one subdivision.

The Arctic Coast tribes include Dall's Kopagmute, Kangmaligmute, and Nuwukmute, and all the coast villages down to Cape Krusenstern.

In their mode of life all the people living on the coast between the British boundary and Kotzebue Sound are very much alike. Some set-

tlements are inhabited chiefly by whale hunters, while at others much time is devoted to the pursuit of reindeer, each industry engendering different habits and customs, but they all have subterranean winter houses and skin-covered tents for summer use. Though they have been in contact with whites directly and indirectly for nearly a century, there are still found in use among them many implements fashioned of stone, ivory, and bone; and they still consume much of their fish, seal and walrus meat, and blubber in a raw state. But a remarkable contrast to their primitive condition is furnished by specimens of carvings, chiefly masks and human figures, deposited in the National Museum by Mr. E. W. Nelson, many of which may justly be classed as artistic sculpture. A large amount of ready-made clothing finds its way into the hands of these people, who wear it in the summer, but the excessive cold of winter compels them to resume the fur garments formerly in general use among them. The heavy parka of reindeer, wolf, or dog skin is the outside garment worn by both sexes; undergarments are generally fashioned of the tanned skins of reindeer, or of hair-seal and fox skins, the latter being used for trimming; and the high boots worn by both sexes are made of hair-seal and reindeer skins.

Of the tribal organization of these people but little is known, but there seems to be no recognized chieftainship; each isolated settlement generally containing one man who makes himself prominent by superintending all intercourse and traffic with visitors. The profits accruing to him from this position give him some slight influence among his people; but the *oomailik* (*oomuialik* of Zagoskin), as these middlemen or spokesmen are called, possess no authority over the people of their village, who pay far more attention to the advice or threats of sorcerers, shamans, or "medicine men." In the festivals, consisting of feasting, singing, and dancing, with which these hyperboreans while away the long winter nights, the shamans also play a prominent part, directing the order of the performances and the manufacture of masks, costumes, etc., while the oomailik or spokesman sinks back into insignificance for the time being.

During the brief summer a large proportion of these people roam eastward and westward along the coast trading and hunting. In late years their movements have been guided chiefly by those of the whalers pursuing their quarry in the narrow belt of open water between the solid ice and the coast.

THE KOPAGMUTE (Big River people).—In this subdivision I include all the Eskimo tribes living in the western interior of Arctic Alaska. Their habits are almost entirely unknown beyond the fact that they form the connecting link between the coast people in the north and the Athabaskans in the south.

THE NUNATAGMUTE (Inland people).—This subdivision includes both the Nunatagmute and Kowagmute of Dall, comprising the inland tribes living on the Noatak and the Kowak rivers. Of these people we also know but very little beyond the fact that they live on the upper rivers, have communication with the Athabaskans of the northern Yukon region, with whom they have mixed, on the headwaters of the Koyukuk River. Mr. E. W. Nelson, who saw some of these half-breeds on Kotzebue Sound, describes them as resembling in stature and facial peculiarities the Athabaskan, while speaking an Eskimo dialect.

THE MAHLEMUTE.—The Mahlemute inhabit the country between Kotzebue and Norton sounds, occupying villages upon the coasts of both these estuaries. In their mode of life they resemble the Arctic Eskimo, but they are the traders par excellence of all this region;

indulging, however, frequently in robbery and violence when trade is slack. They serve as middlemen in the exchange of commodities between Bering Sea and the Arctic, drawing their supplies of stock in trade chiefly from the depots of St. Michael, which place they visit during the summer in large open skin boats fitted with masts and sails. The Mahlemutes are expert navigators and bold hunters, but their reputation with whalers and traders is decidedly bad, and great caution is observed in intercourse with them. They are naturally anxious to maintain their profitable position as middlemen, and thus far have resented all attempts to locate permanent trading stations among them or within the limits of their own mercantile operations.

In dress and appearance the Mahlemute do not differ from their neighbors. In the sketch herein inserted they are represented as they appear in their summer encampments on Norton Sound. The southernmost village permanently occupied by the Mahlemute is Shaktolik, on Norton Bay, but several families possess winter houses in the vicinity of the trading post of Oonalakleet, within the boundaries of another tribe. Their festivals are distinguished for variety, there being one in honor of nearly every animal hunted by the people, most of them being celebrated during the period of winter idleness, the "reindeer dance" and the "whale dance" being among the most important ceremonies, which are accompanied by the most grotesque display of masks and costumes. The "labret" or cheek ornament, of bone, ivory, or stone, is still worn by the Mahlemute as universally as it is found among the coast tribes in the north and west; and even where the ornament itself is absent the cut made in the cheek and under lip for its insertion can be observed. All the masks are provided with an imitation of this ornament. The custom of trimming the hair of the head exists among the Mahlemute as well as among nearly all the tribes of Eskimo stock, but the shaving of the entire crown of the head of males seems to be confined to the Arctic tribes. Wherever the Eskimo appear together with their interior neighbors it is easy to distinguish the long, unkempt, matted hair of the Athabaskan from the closely-cropped bullet heads of the Eskimo.

THE KINGIGUMUTE (including the Okeeagmut of Dall and the Okeeagmut of King's Island).—This unruly and warlike tribe occupies the country adjoining Cape Prince of Wales and the islands of Bering Strait. They are also great traders, and act as middlemen between the people of Asia and those of America. They hunt but little, living chiefly on the profits of traffic. Their reputation with whalers and traders is fully as bad as that of the Mahlemute on Kotzebue Sound. Their festivals and superstitions closely resemble those of their neighbors, and the same can be said substantially of their southern neighbors.

THE KAVIAGMUTE.—This tribe occupies the portion of the Kaviak Peninsula south of Port Clarence and east of Norton Bay and the Mahlemute territory.

THE OONALIGMUTE (the Unaligmute of Dall).—This tribe occupies the coast of Norton Sound from Shaktolik down to the mouth of the Yukon, extending back into the interior as far as the range of hills forming the boundary between the Eskimo and the Athabaskan tribes.

THE IKOGMUTE.—This tribe occupies both banks of the Yukon River from its junction with the Chageluk River near the village of Paimute to its mouth, occupying the east coast between Kotlik and the Kusilvak branch of the Yukon.

THE MAGMUTE (or Mink people).—This tribe adjoins the Ikogmute in the south, extending to the line between the Kvichak River and Cape Rumiantzof.

THE NUNIVAGMUTE.—This tribe occupies Nunivak Island and also a few settlements on the Kashunok branch of the Yukon.

THE KAIALIGUMUTE.—This tribe occupies the coast from Cape Rumiantzof to Cape Avinof, with the exception of the Kashunuk settlement, but including the villages on Nelson Island.

The three tribes last enumerated were classed together by Dall as Magmute, but sufficient differentiation has been discovered by Mr. Nelson to warrant the new divisions.

To all the coast tribes between Kotzebue Sound and the mouth of the Kuskokvim River may be applied the description furnished by Lieutenant Zagoskin in the year 1843. He stated in substance that the natives of Norton Sound and their neighbors are of medium stature, well built, quick in their movements, with round faces, varying in complexion from an almost white to a light bronze. All the males exhibit some trace of beard, and mustaches are quite common. The hair is black, coarse, and straight, but glossy; the mouth large, not curved; teeth even and white. The men wear labrets in the lower lip on each side of the mouth, consisting of stone or bone buttons; but among the females this latter custom has long been obsolete. The men trim their hair all around the head, while the women confine this operation to the vicinity of the ears, wearing the back hair either loose or plaited.

No chiefs are known to exist among them, though some families have acquired prominence and influence chiefly through the accumulation of what they consider wealth. The oomailik, the most experienced tradesman of the village, who serves as spokesman in all transactions with strangers, exerts his influence only as agent or business manager. If a joint action of a number of the inhabitants of a village becomes necessary for any purpose, the old men assemble in the council-house, or kashga, where they settle upon the plan of action for the distribution of labor; and no young man will venture to disregard the decision of his elders in council.

These coast tribes, being essentially a trading people, are possessed of greater shrewdness than their neighbors in the interior, but they rarely use this superiority for the purpose of cheating in trade, as all their capacity in this direction is reserved for their intercourse with white people. As a rule these tribes do not practice polygamy, though a few instances have been known of wealthy traders who maintained separate households in the various settlements visited in pursuit of their business. No especial marriage ceremony seems to be observed, though the consent of parents seems to be essential to the accomplishment of a union. The bridegroom either takes away his bride to his own people or she remains with her family. Separations rarely occur, but in such cases the children remain with the mother. A man who has lost two or three wives rarely succeeds in obtaining a fourth.

The females of the coast tribes are not fruitful, and to see four children of one mother is quite a rare occurrence, one or two being the common number of children to a family. Marrying early, as a natural consequence the women fade early; a wife of 25 is always an old woman. The children are treated with great tenderness, but grow up in perfect liberty until they are self-supporting, and their every want or whim is satisfied by the parents, even at the greatest inconvenience to themselves. The young of both sexes acquire skill in their respective labors early while playing with the diminutive arms, tools, and implements fashioned for this purpose by their parents. Festivities take place at certain periods during the lives of children. For instance, when the

PLATE III.

MAHLEMUTE MAN AND WOMAN.

boy's hair is trimmed for the first time, or when he first goes to sea alone in a kaiak, or when he dons his first pair of snowshoes, or when the first incision in his lip is made to accommodate the labrets, a feast is given by the parents if they are able to do so; but in cases of great poverty these ceremonies are frequently postponed until the young man himself is able to provide the necessary material. No youth is considered to have reached manhood until he has killed either a wolf, a reindeer, or a beluga.

The shamans, or sorcerers, living among these people furnish children with amulets, or charms, consisting of little ivory carvings or pieces of skin fancifully braided, or other articles to be worn around the neck, and the parents frequently go to considerable expense to secure such talismans.

The men sometimes change their names several times during their lives by assuming a new one after every great memorial feast given in memory of a deceased relative.

A woman after childbirth is not allowed to partake of fresh food for twenty days, during which time she must stay within the house, generally sitting in some dark corner with the infant; and every five days during this period she must bathe.

Like all Eskimos these tribes are superstitious and afraid of the dead or dying, though they seem to reverence the memory of the deceased; and sometimes a sick person at the point of death is carried into an abandoned hut and left there alone to die of hunger and neglect. The dead bodies are generally wrapped up in mats, with the knees drawn up to the chin, and are covered up with rocks or pieces of drift log; and the skulls of reindeer or bear are frequently placed beside such burying places, especially if the deceased had been a hunter. After the death of a husband the wife cuts her front hair short, and abstains for a period of twenty days from fresh food, the husband frequently observing the same custom on the death of his wife. The festivals in memory of the deceased are celebrated at various times of the year, chiefly at times of leisure between the seasons for hunting various animals. In addition to the annual memorial feasts, grand festivals are celebrated at intervals of ten and fifteen years, according to the ability of the surviving relatives to accumulate sufficient property for the purpose, and on such occasions the giver of the feast frequently distributes all his property among the guests.

The clothing of these coast tribes consists of furs, especially the skin of reindeer. Garments made of marten, muskrat, or ground-squirrel skins they receive from the Yukon River, while mink skins are used chiefly for making gloves and the trousers of women. The upper garments or parkas have short sleeves and do not reach below the knee, those of the males being the same length all around, while those of the women are slit on the sides. The men wear one pair of pantaloons with the fur inside. The women wear two, one short, reaching not quite down to the knee, generally made of tanned buckskin or reindeer-fawn skin, with the fur inside, the other long with the fur outside. They have no buttons or hooks, and the pantaloons are attached to a belt with straps. The boots for winter use are generally made of the skins of reindeer legs, and reach about half way up the calf of the leg. Some of these are richly trimmed with wolverine or white reindeer skin. The summer boots are made of sealskin, reaching up to the knee and above, the soles being made of the thickest portion of the hair-seal skin. The winter parkas are usually provided with a hood which can be drawn over the head. The most valuable of these garments are obtained from

the Mahlemutes, who purchase them of the Chukches in Siberia. These garments are made of the skins of tame reindeer. A woman clothed in one of these parkas and provided with boots made of the skins of white tame reindeer considers herself dressed in the height of fashion, and attracts much attention from the youths of her tribe. For convenience in walking the parkas are girded up with a belt, the latter being worn far below the waist.

The skin of the wolf is much valued for trimming garments, and to obtain these the coast tribes formerly resorted to an artifice which has been superseded at present by the use of steel traps. In the middle of winter, when the snow was deep and the wolf hungry, the hunter would whittle down strips of whalebone about 2 feet in length, roll them up, wrap them in pieces of seal blubber, and throw them promiscuously about the vicinity. A hungry wolf would bolt down one of these frozen lumps, when, the heat of the stomach melting the fat, the piece of whalebone would be released and straighten out, killing the animal, and in the morning the hunter would go out and pick up his quarry.

Reindeer are generally captured by these tribes by surrounding the herd and shooting the animals with arrows or bullets as they approach the concealed hunters. Fish are caught both with nets and hooks and line, and seals are generally shot or speared on the ice in the winter, or as they come up to their breathing holes. While watching for seals the hunter piles up pieces of ice before him and wears a white reindeer skin parka in order to conceal himself from the vigilant animal. The beluga is hunted by numerous parties in kaiaks. Sometimes a hundred or more of the natives proceed to sea on a calm summer day, observing perfect silence and keeping well inshore. As soon as a school of belugas is sighted an old man gives a signal, the kaiaks hurry to seaward of the school, and a tremendous noise begins, with shrill cries and yells, beating of drums and rattles, and splashing of paddles and spears in the water. The hunters gradually approach the shore, driving the belugas before them, until the latter, in the shallow water, fall an easy prey to their spears. In former times, when the beluga was more plentiful, from 100 to 200 were secured in this way in a single day, and the old men and the women and children crowded the shore ready to drag off the carcasses beyond the reach of the tide.

All of these tribes shun the use of iron in killing the beluga, confining themselves entirely to spear and arrow heads of stone and bone. Inflated bladders of whole skins of the young seal are attached to the spear heads, serving to buoy up the wounded animal and keep it from diving. The blubber, meat, and skin of the beluga are all valued alike as food when fresh, and the tanned hide is used for making boots, covering kaiaks, and making nets. The tanning is generally accomplished with rotten fish roe.

All these tribes have summer dwellings distinct from those used during the winter. For the winter houses a square excavation of about 3 feet or more is made, in the corners of which posts of driftwood or whale ribs from 8 to 10 feet in height are set up; the walls are formed by laying posts of driftwood one above the other against the corner posts; outside of this another wall is built, sometimes of stone, sometimes of logs, the intervals being filled with earth or rubble; the whole of the structure, including the roof, is covered with sods, leaving a small opening on top, which can be closed by a frame over which a thin, transparent seal skin is tightly drawn. The entrance to one of these houses consists of a narrow, low, underground passage from 10 to 12 feet in length, through which an entrance can only be accomplished on hands

and knees. The interior arrangement of the winter house is very simple, and is nearly the same with all these tribes. A piece of bear or reindeer skin is hung before the interior opening of the passage; in the center of the inclosure is the fireplace, which is a square excavation directly under the smoke hole in the roof; the floor is generally planked, and frequently two low platforms about 4 feet in width extend along the sides of the house from the entrance to the back, covered with mats and skins, which serve as beds at night. In the larger dwellings, occupied by more than one family, the sleeping places of each are separated from each other by suspended mats, or simply by a piece of wood. All the bladders containing oil, the wooden vessels, kettles, and other domestic utensils are kept in the front part of the dwelling, and before each sleeping place there is generally a block of wood upon which is placed the oil lamp used for heating and cooking.

The summer houses are erected above ground and are generally log structures roofed with skins and open in front. No fire is made in these houses, and therefore they have no opening in the roof, all cooking being done in the open air during the summer. They seldem have flooring, but otherwise the interior arrangements resemble those of the winter houses. The storehouses of all the Eskimo tribes are set on posts at a height of from 8 to 10 feet above the ground to protect them against foxes, wolves, and dogs. They have generally a small square opening in front that can be closed with a sliding board, and which is reached by means of a notched stick of wood. These buildings are seldom more than 8 feet square by 3 or 4 feet in height.

In every village there is a common building known as the kashga, built after the pattern of the winter houses, but of much larger dimensions, some kashgas measuring as much as 60 feet square and from 20 to 30 feet in height. A raised platform runs all around the interior, and in a few kashgas of extraordinary size three tiers of such platforms have been observed. The fireplace in the center is large, often 3 or 4 feet deep, and on ordinary occasions, when no fire is wanted, is covered over with planks. The entrance is through a passage resembling that of the dwelling houses, but divided at the end; one branch leading to the fireplace below the flooring, the other into the main compartment. In this building the men carry on their domestic labor, such as the preparing of skins, the plaiting of fish traps, and the manufacture of sleds. In the kashga all public business is transacted and councils held, and it also serves as shelter for all guests and visitors, who are there entertained, as well as the theater for all festivals, mask dances, and representations. In addition to this the kashga serves as a sleeping place for adult males, and finally also serves as a bath, the most popular recreation of the Eskimo tribe.

The cooking of these natives is a very simple matter, though they do not eat raw fish or meat unless it is frozen or dried in the air. All the offal of meat and fish is given to dogs. The meat when boiled is never well done, being merely kept in boiling water for a short time. The oil of the beluga or of the seal is considered as the most palatable sauce for everything—meat, fish, or berries; while rotten fish and fish roe, considered luxuries, are preserved in wooden vessels for festive occasions, and the heads of salmon are buried in the ground to give them the desired high flavor. With such a diet no cleanliness in cooking or eating can be expected. As a rule, these natives are moderate eaters. In the morning the wife or some other female relative brings to the husband, father, or brother who has slept in the kashga a *kantag*, or wooden bowl, with cold water, together with a piece of dried, frozen, or

boiled fish weighing perhaps a pound. After breakfast the men follow their various pursuits of hunting and fishing, and some time in the afternoon, having indulged in a bath, they partake of another piece of fish or meat of about the same weight, with the addition of a tidbit of rotten fish or spawn, which they eat sitting on their haunches, while the women turn their backs to them, as it would be unbecoming to watch them eating. Visitors are thus served by the wives or daughters of those whom they visit. An evening meal is frequently, but not always, partaken of at home in the dwellings; but the women and children always eat at home.

Their means of transportation consist in the kaiak, the oomiak (bidar), and in winter the dog sled, as they are all alike skilled in propelling the kaiaks and in the management of dog teams.

The sleds used by the coast tribes are generally from 8 to 12 feet long, and the dogs are harnessed tandem. Their snowshoes consist of a very light frame of spruce wood, over which is stretched a network of seal hide, which supports the foot; the toes only being attached to the shoe by means of a small strap. The length of the Eskimo snowshoe is about 3 feet.

In addition to the spears propelled by hand, used in hunting the beluga and the maklak seal, the coast tribes also have spears especially adapted for killing birds and reindeer; these they shoot by means of bows, and the bird spears are divided into several prongs, with the object of dragging down the bird if it be not killed. The spear heads for killing reindeer are made of walrus ivory, and are provided with teeth on one side; these weapons are still preferred to bone points. The shafts of both arrows and spears are made of spruce or larch wood, obtained on the Yukon at the head of Norton Bay; the length of the shaft is from 2 to 3 feet, and that of the bone head from 5 to 6 inches, while the point proper measures about 2 inches. The bows also are manufactured of spruce and larch wood, and the strings are made of the sinews of the seal or whale.

Independent of the great annual and periodical festivals accompanied by religious or superstitious rites, and to attend which the people from different villages flock together, the coast tribes also indulge in private festivals or evening entertainments during the late autumn and the beginning of winter. As among other mortals, singing, dancing, and eating form the principal objects of such merrymakings. On these occasions, however, one family does not invite another to pass the evening, as either the whole population of the village attend promiscuously, or the women invite the men, treating them to delicacies of their own providing, or vice versa. To pass the time masquerading is often resorted to, in which case the women who give the entertainments appear in male garments, with mustaches, and with bead pendants in the under lip, and dance like the men; the latter, on the other hand, representing women.

The subjects of their songs are of indefinite variety, but the melody, as well as the time of their only musical instrument, the bladder drum, is always the same; first one stroke, then a pause; then two strokes, the second stronger than the first, then another pause; again two strokes, a pause; and so on, producing a rather monotonous noise.

All these games, both private and public, take place in the kashga. At the public performances the dancers and singers, men and women, stand around the fire hole, and the men, to the time of the drum and the singing, go through various contortions of the body, shifting from one foot to the other without moving from the spot, the skill of the

dancer being displayed only in the endurance and flexibility of his muscles. The women, on the other hand, with their eyes cast down, motionless, with the exception of a spasmodic twitching of the hands, stand around in a circle, forming, we may say, a living frame to the animated picture within. The less motion a dancer displays the greater his skill. There is nothing indecent in the dances of the seaboard natives. The dancing dress of the men consists of short, tight drawers made of white reindeer skin, and the summer boots of the Chukche, while the women on such occasions only add ornaments, such as rings and bracelets and bead pendants, to their common dress, frequently weighting themselves down with 10 or 15 pounds of these baubles.

The entertainment of the women was described by Zagoskin as follows:

We entered the kashga by the common passage and found the guests already assembled, but of the hostesses nothing was to be seen. On three sides of the apartment stone lamps were lighted, the fire hole was covered with boards, one of them having a circular opening through which the hostesses were to make their appearance. Two other burning lamps were placed in front of the fire hole. The guests, who formed the chorus, began to sing to the sound of the drum, two men keeping them in order by beating time with sticks adorned with wolfs' tails and gulls' wings. Thus a good half hour passed by. Of the song my interpreter told me that it consisted of pleasantry directed against the women; that it was evident they had nothing to give, as they had not shown themselves for so long a time. Another song praised the housewifely accomplishments of some women whose appearance was impatiently expected with a promised trencher of the mixed mess of reindeer fat and berries. No sooner was this song finished than the woman appeared and was received with the greatest enthusiasm. The dish was set before the men, and the woman retreated amid vociferous compliments on her culinary skill. She was followed by another woman. The beating of drums increased in violence and the wording of the song was changed. Standing up in the center of the circle the woman began to relate, in mimicry and gesture, how she obtained the fat, how she stored it in various receptacles, how she cleansed and melted it, and then placing a kantag upon her head she invited the spectators with gestures to approach. The song went on, while eagerness to partake of the promised luxury lighted up the faces of the crowd. At last the wooden spoons were distributed, one to each man, and nothing was heard for a time but the guzzling of the luscious fluid. Another woman appeared, followed still by another, and luxuries of all kinds were produced in quick succession and as quickly dispatched, while the singers pointedly alluded to the praisworthy Russian custom of distributing tobacco. When the desired luxury had been produced, a woman represented with great skill the various stages of stupefaction resulting from smoking and snuffing. All the women appeared in men's parkas.

The men's entertainment witnessed by Zagoskin took place in the same village. The preparatory arrangements were the same, one of the women, a sorceress, leading the chorus. The first song on that occasion praised the propensity of the Russian for making presents of tobacco, rings, and other trifles to the women, who, in their turn, were always ready to oblige them. This, however, was only introductory, the real entertainment beginning with a chorus of the men concealed in the fire hole. The gist of their chant was that trapping, hunting, and trade were bad, that nothing could be made, and that they could only sing and dance to please their wives. To this the women answered that they had long been aware of the laziness of their husbands, who could do nothing but bathe and smoke, and that they did not expect to see any food produced, such as the women had placed before them, consequently it would be better to go to bed at once. The men answered that they would go and hunt for something, and shortly one of them appeared through the opening. This mimic, who was attired in female apparel, with bead pendants in his nose, deep fringes of wolverine tails, bracelets, and rings, imitated in a most admirable and humorous manner the motions and gestures of the women in presenting their luxuries, and

then gave imitations of the various female pursuits and labor, the guests chuckling with satisfaction. Suddenly the parka was thrown off and the man began to represent how he hunted the maklak, seated in his kaiak, which performance ended with the production of a whole boiled maklak, of which Zagoskin received the throat as his portion. Others represented a reindeer hunt, the spearing of birds, the rendering of beluga blubber, the preparation of seal intestines for waterproof garments, the splitting of deer tendons into thread, and so forth. One young orphan, possessing nothing wherewith to treat the guests, brought on a kantag filled with water, which was drunk by the women amid much merriment. It sometimes happens on these occasions that lovers of fun sprinkle the women with oil, or with the fluid which they use in place of soap, squirted from small bladders concealed about their persons, and such jokes are never resented.

The Eskimo tribes all look upon the shamans or conjurers (*tungaks*) as mediators between themselves and the invisible world, but it is impossible to say whether or not they believe in the actual control of spirits by the conjurers. A majority of these individuals have considerable practice in tricks of sleight of hand; at the same time they do not seem to enjoy much respect, unless they combine with the business of conjuring the qualities of an expert trader and skilled hunter. The tungak, in addition to calling spirits proper (*ikhchingak*), also claimed the power to force the souls of deceased members of their family to enter his (the tungak's) body. The spirit or principal of life (*iltkhluaghum*) is invoked on all occasions, but principally in cases of sickness. It is believed that he appears in five distinct forms. A creator of the world, called *Nunalukhta*, also occasionally appears in traditions of the coast people.

A festival in honor of the spirits of land and sea, and in memory of deceased kinsmen, is celebrated annually in the month of October or November, in the following manner: At sunset the men assemble in the kashga, and, after a hurried bath, ornament each other by tracing various figures with a mixture of oil and charcoal on the naked back. Two boys, who for this occasion are respectively named the Raven and the Hawk, are in attendance, mixing the paint, etc. Finally the faces also are thickly smeared, and then the females are summoned into the kashga. After a brief lapse of time a noise is heard, shrieks and yells, snorting and roaring, and the disguised men, emerging from the fire hole, show their heads above the floor, blowing and puffing like seals. It is impossible to distinguish any complete human figure, as some are crawling with their feet foremost, others running on their hands and feet, while the head of another is seen protruding between the legs of a companion. They all cling together and move in concert, like one immense snake. A number of the men wear masks representing the heads of animals, and the unsightly beings advance upon the spectators, but chiefly endeavoring to frighten the women, who have no means of escaping molestation except by buying off the actors with presents. Knowing what was before them, they have brought the kantags or wooden bowls full of delicious morsels—beluga blubber, walrus meat, whale-oiled berries, and other dainties. When each of the maskers has eaten and filled a bowl or two with delicacies to take home, they indulge in a pantomime and gesture play of a highly grotesque character. After completing the ceremony in the kashga the maskers frequently visit some of the dwellings and receive gifts in each, the whole performance ending with singing, dancing, and feasting in the kashga.

An annual memorial feast, celebrated in one of the villages on Norton Sound, was described by Zagoskin as follows:

On the day before the festival the people from neighboring villages had assembled to the number of 70, exclusive of children. On the following day the givers of the feast proceeded to the burial ground, for the purpose of renewing the memorial posts and depositing the head of a reindeer with its entrails; wooden bowls with various articles of food were also deposited. In the evening the kashga was filled with people, but the most profound silence reigned. The feast was in memory of 7 deceased persons, and accordingly 7 huge stone oil lamps were placed around the fire hole. Before the beginning of the ceremonies the givers of the feast, dressed in their best apparel, deposited upon the floor the articles intended for distribution in memory of their dead kinsmen. These articles consisted of spears, arrows, garments of various kinds, seal skins, paddles, knives, hatchets, rings, tobacco, mats, and various trifles. Each giver proclaimed in a loud voice for whom each article was intended, and then delivered it in silence. At the end of the distribution the spectators and hosts divided themselves into four groups, one in each angle of the kashga. One of the visiting old men, assisted by a number of women, began to chant a song especially composed for the occasion by the shamans or tungaks, acting as masters of ceremonies. The voices of the singers were kept in a low key; drums and rattles were not used on this occasion. Then the givers of the feast represented in pantomime, without stirring from their places or moving a foot, the deeds of their deceased relatives. After the pantomime, which lasted half an hour, the performers left the kashga. After the lapse of about fifteen minutes the whole floor of the kashga was covered with food: there were mountains of blubber, several whole boiled seals, huge piles of dried fish, and also, to my astonishment, several wooden dishes with clean water. Several of the givers of the feast produced as many as 15 different dishes. All those who rejoiced in the same name as the dead in whose honor the feast was given were selected and presented with one of the small bowls of water, which they seized, wetted their fingers, and sprinkled a few drops of water upon the floor, whispering, at the same time, "Drink, our dead kinsman." Then these namesakes of the dead were presented with bowls of food, and they also scattered a few morsels upon the floor, saying, "Take this, our dead kinsman, from our stores, and help us to obtain more during the coming year." After this the gorging became general.

The smallpox had decimated these tribes but a few years previously, and the number of bowls of water distributed in memory of its victims was very great.

It has already been mentioned that many individuals gave away all their property on such occasions. If it happens that during such a memorial feast a visitor arrives from a distant village who bears the same name with the subject of the celebration he is at once overwhelmed with gifts, clothed anew from head to foot with the most expensive garments, and returns to his home a wealthy man.

Another festival, in honor of the spirits of the sea (*ingiak*), is celebrated by the coast tribes during a whole month. The preparations for this gathering begin early in the autumn. Every hunter preserves during the entire year the bladders from all such animals as he kills with arrows; the mothers also preserve with the greatest care the bladders of all rats, mice, ground-squirrels, or other small animals killed by their children. At the beginning of December all these bladders are inflated, painted in various colors, and suspended in the kashga; and among them the men hang up a number of fantastically carved figures of birds and fish. Some of the figures of birds are quite ingeniously contrived, with movable eyes, heads, and legs, and are able to flap their wings. Before the fireplace there is a huge block wrapped up in dry grass. From morning until night the carved figures are kept in motion by means of strings, and during the whole time a chanting of songs continues, while dry grass and weeds are burned to smoke the suspended bladders. This fumigating process ends the day's performances, which are begun anew in the morning. In the evening of the culminating day of the festival the strings of bladders are taken down and carried by the men upon painted sticks prepared for the occasion; the women, with torches in their hands, accompanying them to the sea-

KUSKOKVAGMUTE MALE SUMMER DRESS.

The history of a day as it passes in an Eskimo village on the Bering Sea coast will furnish the best description of the manners and customs of these people. As has already been mentioned, it is customary with the men to sleep in the kashga, a few having reindeer skins as bedding, and those who are without them sleep on the bare planks, covering themselves with their parkas and using their nether garments as pillows; feather pillows seeming to be the prerogative of the wealthy only. In the winter time the day begins at about 8 o'clock. Whoever happens to be first awake lights the oil-lamp, if any of the fluid remains from the previous night; if not, he emerges from the kashga and brings a supply from his home. The kashga is common property, though a few old men, who probably assisted in building it, assume the duties of hosts on certain occasions. Axes, wedges, and other tools are brought to the kashga from time to time, and are also considered common property as soon as they have been deposited. The huge stone lamps for lighting do not require any repairs, and are handed down from generation to generation; but if any material is wanted, such as planks, dried grass, etc., for repairing the building, it is at once furnished by those who happen to have it on hand.

A few of the men prepare breakfast in the kashga, but to most of them the meal is brought in by their wives or some other female relative. After breakfast it is deserted for a time, the men going out to look after their traps and fish nets, or to hunt in the neighborhood. The women assist their husbands in harnessing the dogs, and then, in their turn, go out to gather dry wood or employ themselves in domestic labor, sewing or patching, making threads from deer tendons, or plaiting mats or socks. Nearly all the coast tribes here discussed wear, always in the summer and frequently during the winter, socks made very skillfully of dried grass by the women. Occasionally a woman may be seen hammering with all her might one of the posts of a storehouse without any apparent purpose; she is in the last days of pregnancy, and that kind of exercise is considered conducive to an easy delivery. The boys and girls scatter about the vicinity to look after their snares and traps set for hares and grouse. About an hour after noon the thickening, whitish smoke arising from the dwellings indicates the dinner of the children; after that the adults assemble for the same purpose. The wife divests her returning husband of his wet garments, unharnesses the dogs, deposits the sled on the roof of the dwelling, and stores away in the storehouse the fish or game brought home by the husband, always laying aside a portion for days when the inclement weather will keep the provider at home. During the winter from four to five days frequently pass when the hunters have no opportunity to leave the house to look after their nets and traps. The dinner over, the kashga begins to fill up. Men bring their work and pass away an hour repairing arms, tools, nets, and other implements, until somebody suggests a bath. This meets with general approbation, and preparation begins. Wood is carried in by the armful, the fire lighted, and the men bring from their houses their toilet articles—a wisp of dry grass, a basin, and a few branches of alder for whipping themselves into perspiration. At last the bath is ready; the kashga is heated to suffocation and full of smoke; the men throw off their garments, and with shouting, dancing, and whipping bring themselves into perspiration; then a liberal application of their disgusting substitute for soap produces a lather, which is rinsed off with cold water and finally removed by the bathers rushing out of the building and rolling in snow, or jumping into the river should it be free from ice. The first part of the process creates a terrible

At midnight the young men stretch themselves upon the platform of the kashga, which has been deserted by the married men, who have returned to their homes.

THE KUSKOKVAGMUTE.—This tribe (the Kuskokvogmute of Dall, or the Kuskuchevak of Richardson), numbering between 3,000 and 4,000, occupies both banks of the Kuskokwim River from its mouth to the vicinity of Kalmakovsky, and are among the most interesting of the Eskimo tribes bordering upon Bering Sea. They were brought into contact with the Russians at an early date (1835), when Kolmakof explored the overland route from Bristol Bay to Norton Sound, along which route, now no longer traveled, the effects of Russian influence are quite perceptible; but the inhabitants of the lowlands about the river mouth have scarcely come in contact with Caucasians up to the present day. The labors of the Russian missionaries of the Yukon never extended to this region, though their registers and reports show quite a number of Christians on the Kuskokwim River. The only trace of Christianity among this tribe, outside of the immediate vicinity of the trading station with its chapel, consists of a few scattered crosses in the burial places adjoining the settlement. At the village of Kaltkhagamute, within three days' travel of the Russian mission on the Yukon, the graveyard contains a remarkable collection of grotesquely carved monuments and memorial posts, indicating very clearly the predominance of old pagan traditions over such faint ideas of Christianity as may have been introduced among the people. Among the monuments in this place the most remarkable is a female figure with four arms and hands, resembling closely a Hindoo goddess, even to the almond eyes and the general cast of features. Natural hair is attached to the head, falling over the shoulders. The legs of this figure are crossed in true oriental style, and two of the hands, the lower pair, hold rusty tin plates, upon which offerings of tobacco and scraps of cotton prints have been deposited. The whole is protected by a small roof set upon posts. Other monuments are scarcely less remarkable in variety of feature and coloring, and the whole collection would afford a rich harvest of specimens to any museum. During my brief stay at this spot it was found impossible to ascertain anything of the meaning of these monuments or to gather any of the traditions of the people with reference to them, though several of the structures were quite new, one of them, in memory of a young man who had been killed accidentally while hunting, having been erected but a month previously. The presence of my Christian paddlers from the Yukon mission acted as a very efficient restraint upon the people of Kaltkhagamute, who nominally belong to the missionary fold. Nearly all these figures were human, though grotesque and misshapen, and drawn out of proportion. No images of animals or birds, which would have indicated the existence of totems and clans in the tribe, were to be seen; but here and there, over apparently neglected graves, a stick surmounted by a very rude carving of a fish of the salmon species could be discovered.

The burial places of the populous villages of the lower Kuskokwim River abound in these carved monuments, but nowhere could I discover the totem among the emblems, though Mr. E. W. Nelson, of the United States Signal Service, claims that among the Kaialigamute of the great lake region of the delta he saw totem posts set up among the dwellings. As the people of the great lakes have always led an isolated existence, having been totally unknown to white men until Mr. Nelson went among them (the whole region having been covered by former map makers with a mountain chain), it is probable that they have preserved cus-

The steam baths so common in all these regions are also prepared in the kashga, but are indulged in only by the grown-up males.

The accompanying plate represents a beluga hunter of the lower Kuskokvim and his humble home.

THE TOGIAGAMUTE.—This tribe has not heretofore been distinguished as a subdivision of the Eskimo, having never been visited by white men in their own country until the year 1880. They have remained thus isolated and unknown because their country affords no attraction to the trader in the shape of furs. They possess the general features of their Eskimo neighbors, but the males rarely have any beard until they are quite old. Their dwellings are of the most rude description, the villages resembling those of the prairie dog on a somewhat enlarged scale. This similarity is increased in the morning, when it is the custom of the men to crouch upon the apex of the low mound of sods, staring about aimlessly into vacancy, wrapped completely in their ground-squirrel parkas. The Togiagamute—who may be divided into people of the coast and those of the interior or lakes—have held no communication with traders, except through the medium of a few individuals of the coast people who were bold enough to visit a small trading post some distance to the eastward of the mouth of Togiak River. The interior people, or Kassianmute, had never beheld the Caucasian until my visit. Of their domestic life but little could be ascertained, as women and children would fly screaming to hide in the tall grass of the tundra at first sight of the visitor, who was at once surrounded by a crowd of astonished and inquisitive males, nearly everything on and about the traveler and his canoe possessing the greatest interest for them, and loose articles, such as a compass and field glass, writing materials, etc., were passed around from hand to hand and closely inspected, but safely returned at last. An absence of the elaborate carvings found among the Kuskokvagmute is very noticeable here, the crudest images of fish and the human head and face being all they possess in this line. They lead a thoroughly nomadic life, wandering from place to place in search of game or fish, having no shelter beyond that afforded by a kaiak turned upon its side, supported by a paddle or two. This simple screen is shifted about as the wind changes, and whole families rest in the lee of this unsatisfactory shelter in pelting rainstorms, with only their heads enjoying the least protection. Among the Eskimo tribes heretofore described the traveler generally finds some one in each village who acts as spokesman, though not possessing any real authority; but the Togiagamutes seem to live in the most perfect state of independence of each other. Even the communities do not seem bound together in any way, families and groups of families constantly changing their abode, leaving one community and joining another, or perhaps forming one of their own. The youth, as soon as he is able to build a kaiak and to support himself, no longer observes any family ties, but goes where his fancy takes him, frequently roaming about with his kaiak for thousands of miles before another fancy calls him to take a wife, to excavate a miserable dwelling, and to settle down for a time.

A branch of this tribe occupies a few villages on a peninsula formed by Cape Newenham. These differ much in their habits and customs from their immediate neighbors, owing to the fact that large droves of reindeer still roam over the mountains of the peninsula, the hunting of which seems to be a monopoly of these natives, whom we may distinguish as the Chingigumute or Cape people, and whose principal settlement is Azivigiak. The Chingigumute have been in contact with both

PLATE V

BELUGA HUNTER AND DWELLINGS - LOWER KUSKOKVIM, ALASKA.

PLATE VI.

BURIAL PLACE OF TOGIAGAMUTE.

Russians and neighboring tribes, as a portage route from the Kuskokvim to Togiak Bay leads through their country; consequently they do not differ much in their customs from the Kuskokvagmute, though their dialect is that of the Togiagamute. There is one peculiarity of the people just described which they have in common with the inhabitants of the lower Kuskokvim. I refer to the surprising indifference in regard to the quality of their drinking water, as they drink the water of brackish lagoons, full of offal of fish, seal, etc., even in localities where running water of better quality is quite convenient. The hunters who proceed to sea in their kaiaks in pursuit of the seal or of the beluga take with them only a dipper and quench their thirst with salt water. I had occasion to observe this peculiar custom even when I had with me a supply of fresh water, of which these natives might have partaken.

The accompanying plate represents a burial place near the mouth of the Togiak River.

THE NUSHEGAGMUTE.—The Nushegagmute, also known as Kiatagmute, are confined strictly to the valleys drained by the Nushegak River and its tributaries. In outward appearance they resemble their neighbors already described, but their manners and customs have been somewhat changed by long contact with the Russians and the location of the missionary station at Alexandrovsk, on the mouth of the river. The men are hunters of considerable skill on both land and water. The natives inhabiting the headwaters of the river and the lake region of the interior are in constant communication with the Athabascan tribes. All the natives of this tribe are carried on the register of the Russian missionary, and consequently are nominally Christians, although still addicted to their old pagan customs and festivals. During a favorable season the outlying settlements receive an annual visit from the missionary, whose influence does not extend much beyond the baptizing of infants and the marriage of such couples as visit the mission station. The interior of this region being generally wooded, the dwellings of natives are somewhat larger and more comfortable than those of the coast people. The inhabitants of the immediate vicinity of Alexandrovsk and the seacoast have been strangely mixed by immigration from the westward and northward, and we find here families from the Kuskokvim, from the Yukon Delta, and even from Norton Sound, the latter of the Mahlemute tribe. Many of these strangers are engaged in walrus hunting along the shallow coast and about the outlying islands. Here, as on the Kuskokvim, the natives within the reach of tide water use the Eskimo kaiak exclusively, while those of the interior have birch-bark canoes. The men are all skillful carvers in ivory, and both males and females take part in the scenic performances connected with their many festivals. The kashga or kashima (the latter a Russian term) is found in every village, and is used as workshop, bath, and assembly room alternately.

Great care and pains are bestowed upon their masks and scenic representations by these natives, as well as by the neighboring tribes. The actors in the scenes represented always array themselves in their costumes and masks out of sight of the spectators, generally in that part of the kashga partially covered by the flooring, ascending through the fire hole like actors from a trap in the stage. A change in the action is generally accomplished behind skins held up as a screen, and every participant in the performance does his utmost to act his part as true to nature as possible. During representations of combats between men, and between men and animals, bladders filled with seal's blood are concealed about the person in order to give a realistic representation

of the flowing blood. Stuffed animals introduced on such occasions are generally moved about quite naturally by hidden strings and cords, and carved birds flap their wings through the same agency. The majority of the masks have movable eyes and jaws. In fact, these performances afford a striking contrast to the dramatic scenes enacted by the Chinese, who boast of the oldest civilization of the globe. A learned Chinaman, with the red button on his cap, the proof of having passed the most difficult examinations, will stand in the auditorium of a Chinese theater crowded to suffocation, through a five or six hours' performance on the board stage, where everything in the way of scenery consists of a few dry-goods boxes and a stool or two; where changes of scenery are denoted by placing a small flower pot on one of the dry-goods boxes to represent a garden, and placing an inkstand to indicate an office or a court room; where a criminal about to be executed is touched with a paper sword on the side of his neck, and walks demurely off the stage in full sight of the audience; where a man about to be murdered walks out and brings in a miserable dummy and holds it up to be slain in his place; while among these savage tribes every detail pertaining to their representations is attended to with patience and care, exceeding even those bestowed upon such matters on our provincial stages.

THE AGLEMUTE.—This tribe, numbering but a few hundreds, inhabits the north coast of Aliaska Peninsula, down to the Ugashik River, where the Aleutian settlements begin. The Aglemute also are Christians, but, like their neighbors, retain all their former customs and superstitions. Their villages are all located on the seacoast, with the exception of one at the head of Lake Walker. The natives of the coast villages are walrus hunters, and occasionally put out to sea in pursuit of whales. They are equally skilled in ivory carving with their northern neighbors, the difference between them being almost purely dialectic. The latter circumstance is probably owing to the fact that the Aglemute have lived from time immemorial upon the portage routes between Bering Sea and the North Pacific, across the Aliaska Peninsula. The people of the easternmost villages on Lake Walker even now maintain a more constant communication with the Kaniagmute of Katmai across the mountains than they do with their kinsmen on the coast of Bering Sea. Among the Aglemute also traces of immigration from distant tribes exist. I found on the Naknek River, the outlet of Lake Walker, a family hailing from Ikogmut, some 200 or 300 miles up the Yukon. Their immigration had taken place quite recently, and they still remembered many of the people in their old home by name. In former times there existed another element among the Aglemute—Aleutian invaders who for some time inhabited two settlements on the mouth of the Naknek River. As far as can be ascertained, the Aleutians retreated down the peninsula as far as Ugashik at the beginning of the present century. In their garments the Aglemute do not essentially differ from their western and northern neighbors, though they make use of reindeer skins for their winter garments, these animals being quite plentiful in their country.

THE KANIAGMUTE.—Crossing the mountains from the country of the Aglemute, we enter the territory inhabited by the most important among the Eskimo tribes of Alaska, the Kaniagmute (Koniagimute or Kadiaktzi of the Russians, Kikhtagmute of the Aglemute, or the Ultz-chna of the Athabaskans of Cooks Inlet). The Kaniagmute were the first Eskimo tribe with whom the Russians came in contact, and their first meeting was not of a friendly nature. Before the Muscovite

traders had become more intimately acquainted with this tribe they classed them as Aleuts, on the strength of their outward resemblance to the latter, and such they were called as long as the country remained under Russian rule, though scientific men knew long ago that the Aleut belonged to a different tribe from this. Our earliest knowledge of the Kaniagmute is based upon the reports of Golovief, the Russian, who landed on Kadiak in the year 1762, and of Shelikhof, who established the first permanent settlement on the island. The latter, whose personal investigations among the people extended over two years of residence, in narrating the events of his voyage, wrote as follows:

The Kaniags (Kadiak people) are tall, healthy, and strong, generally round-faced, with light-brown color; the hair is black, seldom dark brown, and is cut off around by men and women. The wives of some of the more prominent natives comb a bunch of their hair forward over the forehead and cut it off at the eyebrows. A few of the men have beards, and both sexes frequently tattoo the breast and shoulders in imitation of neckerchiefs. Men, women, and young girls pierce the partition of the nose as well as the ears and under lip; the latter disfigurement often assumes the size and shape of a second mouth. Through the hole in the nose a small stick or bone is worn, and bead ornaments are placed in the ears, mouth, and nose. The men do not cut their beard. They have no shoes, going always barefooted, and at home entirely naked, with the exception of a small apron of skin. They wore parkas of the skins of beaver, otter, fox, bear, birds, ground squirrels, marmot, marten, rabbit, reindeer, wolverine, and lynx. Their rain garments are made of the entrails of sea lions, seals, and whales. On their heads they wore hats made of spruce roots and grass; also wooden caps, bent or curved, of one piece.

In the chase of marine animals they used spears that were thrown from little boards, but in war times they used bows and arrows and lances, with points of iron, copper, bone, or stone. They have iron hatchets of peculiar shape; also pipes, knives of iron and bone, iron needles (until our arrival the women made their own needles of bone); thread made of sinews, dishes made of wood, of the horn of mountain sheep, of clay, and stone. Their boats were bidars covered with skins. They catch fish at sea with bone hooks, the lines being very long and made of dried sea weed, the seam of one kind of sea weed being sometimes 40 fathoms long. In the rivers they catch their fish by means of weirs and dams, killing them with spears. They make fire by friction, and use stone lamps for lighting filled with the fat of seals, bears, or sea lions, and provided with wicks of grass.

Of their marriages I know nothing, nor can I say anything of their newborn children, except where the name is given from the first object in view, be it animal, bird, or anything else.

The burial customs differ in the various tribes of the Kaniag. I have not witnessed these ceremonies, but I have been assured that some deposit the corpse, together with the most valuable possessions of the deceased, in a small canoe, and cover it with earth; others inter at the same time with the deceased a live slave. The Kenaige (Kenaitze), however, burn the corpse, together with a number of skins presented by relatives for the purpose.

During the mourning for their dead relatives they cut the hair of the head and smear the face with a black pigment. This they do only for relatives, such as father, mother, brother, sister, and others especially beloved; sometimes also if a stranger for whom they have felt great friendship. If the deceased has been in bad repute or quarreled with his relatives, the latter do not go into mourning.

Epidemic diseases I did not notice among them; they did not know anything of smallpox; they are of healthful habit, and live to a hundred years.

These natives go to meet arriving visitors dressed in their best and painted red, beating drums and dancing to the time with arms in their hands; the visitors approach in order of battle. As soon as the canoes are near enough the host and hostess wade into the sea up to their breasts and drag the canoes ashore as rapidly as possible; then they hurriedly assist the guests out of the bidarkas and carry them singly on their backs to the place appointed for their reception; here they all seat themselves, but perfect silence reigns until everybody has eaten and drunk his fill.

The first and most important ceremony consists in partaking of cold water, and then the children and youths bring on the various dishes, consisting of blubber, a hash made of fish, seal, whale, and sea-lion meat and blubber; the next, berries of various kinds served with oil; then roots mixed with berries and dried fish, and finally meat of animals and birds. Salt is unknown to them. Of every article of food the host must taste first. This made me believe that they had a knowledge of poison. When the host has tasted from a dish he hands it to the guest at his right; he helps himself and then passes the dish in the order of rank. If anything remains

on a dish it is passed back to the first, who gathers the remnants and puts them by to take with him on his departure. The meal finished, conversation begins, and when all the news has been exchanged dancing and singing are indulged in to the music of drums and rattles. Some don masks of grotesque patterns made of wood and painted. When the guests are dressed they are carried by the host to a large hut; this building resembles somewhat a temple of irregular and barbarous architecture. Here the real entertainment begins; as long as the guests remain, singing and dancing and pantomime are continued; when tired they go to sleep, but when they awake the entertainment goes on, ending only with the termination of the visit. On taking leave both parties make presents to each other, and perhaps do a little trading. In these large buildings all of the councils, consultations, and assemblies are held; and whenever anything of importance is going on the female sex is excluded.

[The Kaniags and Chugach have one language, but the Kenaige are entirely different in both language and customs.] The people live in subterranean dwellings, the walls of which are lined with planks; the window openings are on top, covered with bladders of various animals; the entrance is from beneath. They have no fireplaces, and make no fire because it is warm enough without. Their bath houses are similarly constructed, and heat is produced with stone heated in a fire outside; here the natives rub themselves with bundles of grass and twigs. These baths are very hot, but no steam is used. Each settlement has a common kitchen with doors or openings all around. Whoever steals most frequently and successfully is most respected. They do not have many wives—seldom a man has two, but the good-looking and active women sometimes keep two and three men without any appearance of jealousy among them.

They have no vehicle on land and no draft animal, and though dogs are numerous they are not employed for this purpose.

They have not the slightest conception of a God, and though they say that two beings or spirits exist in the world—one good and one bad—they have no image or likeness of the same, and do not worship them. They are not idolators. Of the beings or spirits mentioned above they know nothing beyond the fact that the good spirit taught them to use bidars—taught them to make bidars—and the bad spirit how to spoil and destroy them. From this fact we can judge of the narrow limits of their understanding. They have, however, a great deal of sorcery and soothsaying among them; they have no law of justice, and everything tends to show that they lead a life differing but little from that of beasts. They are of an ardent nature, especially the females. They are enterprising and cunning by nature, and when insulted they are revengful and malicious, though meek and humble in outward appearance. Of their faithfulness and honesty I can say but little, owing to my brief residence among them. I have seen examples of good faith and firmness, but also of the contrary. If they are told that they may derive profit from a certain undertaking they spare no pains and dare anything. Altogether they are a happy and harmless people, as is proved by their daily games and frolics; but as they live in constant enjoyment, and neglect their domestic affairs, it frequently happens that they suffer from want of food and clothing.

In ancient times the Kaniagmute settlements extended much farther both north and south than they do now. They carried on constant wars with the Aleutians of the Shumagin and Aleutian chains of islands, and in the north were found by Captain Cook halfway up Cooks Inlet as late as 1778. In warlike disposition, strength of body, and treachery, they appeared to the Russians very different indeed from the meek and humble Aleuts, but, once conquered, they became fully as manageable and as easily accepted the teachings of the Russian missionaries, who began their labors among them in 1795. The intermixture of Caucasian and other elements in this district has been so great as to leave but few of the original tribal peculiarities either in outward appearance or in manners and customs. The Kaniagmute and their eastern neighbors, the Chugachimute, are the only sea-otter hunters among the Eskimo of Alaska, and as such naturally become of greater importance to the Russians than their western neighbors, receiving a greater share of attention in every way. The manners and customs of the Kaniagmute have been repeatedly described since the days of Shelikhof. First after him came Davidof, a young officer of the Russian navy, who resided two winters on Kadiak Island, in 1802–3. They were next described by J. H. Holmberg, an ethnologist of some repute from Fin-

land, who embodied much of Davidof's work in his own, which was published about the year 1850. Other Russian and German writers have touched upon the subject. The substance of these previous investigations, together with my own personal observations, are embodied in the following pages.

The Kaniags (Koniag, or Kikhtagmute) are the inhabitants of the Island of Kadiak and surrounding islands. They were called Kadiak-Aleuts by the Russians, or briefly Kadiaks. Neither of these two appellations is strictly correct, as originally neither island nor people bore such a name. The name of Kadiak is evidently a corruption of Kikhtak, a word signifying in the language of the Kaniagmute a great island, and which was naturally applied to the largest island of the group. What may have induced the Russians to call the Kaniags Aleuts, a name first applied to the inhabitants of the Fox Islands, different entirely in language as well as in outward appearance from the former, is not easily explained, unless it was based upon the general similarity of outline existing among the natives of the northwest coast of America. In the course of time the name of Kadiak has been universally adopted even by the natives of the island, while the younger generation call themselves Aleut, which they pronounce Aleutik; only the aged still maintain that in the days of their liberty and independence their name was Koniag. We find in the Kaniags a people divided originally into commoners and hereditary chiefs. Among the Thlinket the commander or head man, who was much respected, was chosen among the families of chiefs. Under Russian rule this social organization had almost disappeared, but the chiefs or elders (*starshina*) were selected by the Russian-American Company on account of their influence or wealth, and the company also took care to make these selections from families in which chieftainship had been hereditary. They received a salary from the company, and if they held their office for a prolonged period they were presented with a long tunic made of scarlet cloth. A starshina (or elder) dressed in this manner enjoyed among his people a greater respect than is accorded to European nobles with hundreds of ancestors.

The system of slavery was less developed among the Kaniags than among the Thlinket. They held slaves, but their number was small, and the wealth of individuals did not depend upon slaves entirely, as among the Thlinket. The sacrifice of slaves was unknown. They were looked upon only as laborers or servants, and their lot was a happier one than that of their Thlinket neighbors. Of prisoners of war only the women and children were carried into slavery. The men (according to the doubtful authority of Davidof) were killed at once, or perhaps preserved for some great festival, to be tortured in view of the whole settlement. The few who survived such torture were permitted to live. The principal mode of obtaining slaves was by barter with the other tribes; but no slaves have existed on the Kadiak group of islands for at least a generation. As soon as Shelikhof established himself at Kadiak the slaves began to flock into the Russian camp, where they found protection, and in return served as body guard and scouts for the Russian traders. Later, when the Russians had become firmly established, they confiscated all the slaves and employed them as laborers of the company. At the same time the very name of slave seems to have disappeared, and they were designated by a word imported from Kamchatka, the "kayoor," which signifies day laborer or servant. In course of time, when the original kayoors had decreased much in numbers, the company made a practice of replacing them with free natives who had

committed crimes. It seems that the number of crimes committed always increased with the demand for labor, and finally the system of universal liability to labor for the company was adopted, from which even children and women were not excepted. In outward appearance a few characteristics distinguish the Kaniag from other tribes of the northwest coast of America. The posterior portion of his skull is decidedly flat, and his stature is considerably above the medium, making him the tallest among his neighbors. Occasionally individuals of gigantic stature are met with; for instance, Davidof claimed to have met with a chief in the Bay of Igak who measured 6 feet and 9 inches in height. The dark or nearly copper color of the face or skin is considered by Davidof as not natural, but the consequence of a life of constant exposure; and at the same time he remarks that he saw many white females. The same observation was made fifty years later by Holmberg, but the white faces always appeared to him to be the result of mixture with foreign blood. The coarse black hair, the small black eyes, protruding cheek bones, and brilliant white teeth are common to all the tribes of the Russian colonies. In former times both sexes wore their hair long, the men's in plaits and the women's in a rough knot or roll on the top of the head and cut straight on the forehead just above the eyes. On festive occasions it was smeared with whale oil and a red powder made of burnt ocher, and finally strewn with white down, generally taken from the eagle. Of all these modes of ornamenting the hair, oiling alone has been retained, and nearly all the men, women, and children dress it in European fashion. The partition of the nose, the lower lip, and the external rim of the ear were pierced for the reception of ornaments, of which the one destined for the nose always consisted of a cylindrical pin of bone five inches in length, sometimes replaced with the sea lion whiskers. In lips and ears the ornaments or pendants consisted of small pieces of polished bone, generally pierced and strung upon threads, but after the arrival of the Russians glass beads took the place of these. At the beginning of this century the lip and ear ornaments of the wealthy Kaniag women or a young dandy frequently weighed several pounds.

The dentalium was an ornament much prized by men and women. This shell did not exist in the Russian possessions, but was imported from the British colonies north of the Columbia River, and thence passed from hand to hand along the whole coast as far as the Aleutian Islands. At the time of Davidof's visit to Kadiak, in the year 1802, the price of one pair of these little shells was a whole parka of squirrel skins.

Davidof also relates a tradition of the Kaniagmute to the effect that in the country of the Thlinket, far to the southward, there was a lake from which the dentalium or hyqua shell was obtained, the mollusks being fed with bodies of slaves thrown into the water—a story evidently invented by the Thlinket to enhance the price of this commodity, of which they had a monopoly.

The most precious ornaments consisted of small pieces of amber that were washed up occasionally by the sea on the south coast of Kadiak, but chiefly on the island of Ookamak. These were pierced and strung and served the women as earrings or pendants. At certain times, after an earthquake as a rule, the ocean seemed to be more lavish in bestowing this treasure, and then the amber formed quite an article of trade between the Kaniags and the people of Bristol Bay and Nushegak; but as these larger harvests of amber only occurred at long intervals, the value of the article always remained at a high standard.

The lower lip of the women was always pierced twice, but frequently

five or six times, the men having only one such orifice. Some dandy in ancient times originated the fashion of making a long, horizontal slit in the under lip parallel with the mouth, but this mode had few followers, owing to the inconvenience of having their food come out at the artificial aperture.

At present only the oldest women of Kadiak Island show traces of tattooing on the chin, though formerly this custom was universal. The mode of procedure was to smear a thin thread of whale sinew with a mixture of soot and oil, and then to draw the thread into the skin by means of a needle, thus forming certain primitive patterns. In ancient times the breasts were also tattooed, and frequently two parallel lines were drawn from the ear to the chin; and if a newly-married woman wished to give her husband a proof of great love she tattooed herself on various parts of the body and in the hands.

It was the custom of the Kaniags to paint their faces in various colors before festivities or games and before any important undertaking, such as the crossing of a wide strait or arm of the sea, the sea otter chase, etc. The colors most commonly used were red and black, the pigments consisting of oxide of iron and graphite, which are found on various parts of the coast, mixed with whale or seal oil and applied with pointed sticks. After the face had been covered with one color, the sticks served to scratch in the still moist foundation figures and stripes, which were either filled with other colors or allowed to retain the natural color.

In former times the clothing of both male and female Kaniags was alike, and consisted of the kamleika and the parka. Both of these names were introduced from Kamchatka, the native word for "kamleika" being *kanakhliuku*, and for the parka, *atkuku*. The parka was a long shirt or garment with a small opening at the neck just large enough to allow the head to pass through and with two short sleeves, which were intended more for ornament than for use, as under each sleeve there was a vertical slit through which the arms were thrust when needed, but commonly these members were kept concealed under the garment. The parka was made of the skins of birds or animals; of the former the cormorant, the duck, and the sea parrot furnished the material, and of the latter those of the ground squirrel, the sea otter, the marmot, the bear, and the reindeer were used. After the birds had been skinned the women removed the fatty particles by sucking and then smeared them thickly with putrefied fish roe and let them remain in this shape for some time. After a few days they were cleansed and kneaded with hands and feet until dry. The skins thus prepared were sewed together with needles manufactured from the bones of small birds, and thread prepared by a very tedious process from the dried sinews of the whale. The most valuable of all the bird-skin parkas were those prepared altogether of the necks of the cormorant, worn only by the young women, and a single garment required the necks of from 150 to 200 birds. The feathers of these garments were worn on the outside and were ornamented with the long hair of the reindeer, strips of ermine, sea otter, and sometimes with eagle feathers. Other bird-skin parkas were worn during fine weather with the feathers inside, and in wet weather these were turned out and served to shed the water. The skin was ornamented with figures and lines in various patterns traced in red pigments.

The ground squirrel, or *spermophilus*, furnished the material most generally used for parkas. The animal does not exist on the island of Kadiak, but abounds on some of the smaller islands. The skins were

first cut into squares and then sewed together so that the head and belly formed one side and the back and pendant tail the other, these double squares being then sewed together to make the parka, which consequently had fur both inside and out. The parkas made of bear, moose, sea otter, or reindeer skin were always worn with the fur outside. The marmot skins were obtained by barter from the Kenaitze and Chugach; the reindeer skins from the inhabitants of the Aliaska Peninsula, and exchanged for sea-otter skins or amber, etc. Reindeer parkas were always ornamented with feathers, beads, etc.

The kamleika is the most important article of clothing worn by the Kaniags, as it protects them against rain and moisture, and without it it would be impossible to undertake any extended voyages in bidarkas. It is made from the entrails of bears, sea lions, or seals, occasionally also of those of the sea otter. These are dried, cut into long strips, and sewed together into shirts with wide sleeves, and a hood which is drawn over the head until only a portion of the face remains bare. The entrails are prepared in the following manner: They are first turned inside out and all the fatty particles removed with a sharp fragment of a shell; then they are repeatedly washed in salt water or urine and rinsed and allowed to dry slowly; when dry they are rubbed between the hands until perfectly soft and then are cut into strips and sewed together. When one of these garments is completed the sleeves and neck are tightly bound and water is poured into the body in order to test its imperviousness. The kamleikas made of the entrails of the bear are considered the strongest, but the material is less plentiful than that obtained from sea lions or seals. Lieutenant Davidof states that in ancient times the skins of the tongue and the liver of the whale were also used for the same purpose.

The garments of the Kaniags as they have been described may still be found among them. The squirrel and bird parkas and kamleikas are still universally worn, but they are now ornamented with red worsted and strips of cloth. When the Russians had obtained a firm foothold in these regions they prohibited the natives from wearing garments made of sea otter, bear, or other valuable furs. At present the parka is worn only out of doors, while indoor shirts of cotton, dresses of calico and drill, and trousers of coarse cloth or linen are in common use. Hats and caps of American manufacture have almost superseded the hat plaited of roots and highly ornamented with beads, dentalium, sea-lion whiskers, and figures in black, red, and blue colors. A blue color, consisting of small fragments of ore which are ground to powder, is obtained by barter with the inhabitants of the Aliaska Peninsula. In applying these pigments it was the custom to open a blood vessel of the nose with a sharp piece of shell and to mix the color with the blood to the proper consistency, the Kaniags claiming that such a mixture was more durable than colors prepared with oil. In painting paddles or oars this method was generally adopted. If the bleeding did not cease speedily the cut was sprinkled with ashes. In ancient times the hat was ornamented with an elaborate piece of embroidery, the work of the women, sometimes representing a bush with birds; but this has entirely disappeared. Before the arrival of the Russians the inhabitants of Kadiak were barefooted, but they soon adopted the torbassá (boots of seal or deer skin) imported by the Russians from Kamchatka.

In his choice of food the Kaniag is still less particular than the Thlinket, and in addition to the articles composing the diet of the latter he consumes a number of disgusting and unclean things that no other tribe would look upon as food. As a sample of this I instance the fact that after killing a bear they empty the stomach and entrails

of their contents and boil them with berries; this is done chiefly at a season when the bear also lives upon berries. This disgusting habit can not be traced to necessity, as food of all kinds abounds at that time of the year. It may be stated briefly, but truly, that the Kaniagmute eats anything and everything from the toughest root to the most disgusting worm of land or sea.

The principal means of subsistence, however, is fish. During the summer season it is generally cooked before being eaten, but during the winter the air-dried fish is eaten raw more frequently than cooked. The drying of the fish is done in the open air, and nothing hinders flies and other insects from depositing their eggs therein, which speedily develop into maggots.

The dried fish is generally stored in the dwellings, being piled up along the walls; but if the supply is great it frequently happens that the floor is covered with them several feet high, and the family live on the top of their food until they gradually eat their way to the floor. Among the greatest delicacies of the Kaniag are the meat and blubber of the whale. No other article of food, be it fish or flesh, seems palatable to him without being dipped into oil, and if the supply is ample he drinks the latter pure. The capture of the whale always marks an epoch in the season, people hastening from distant settlements to assist in cutting up the animal. It is the custom to present such assistants with one-quarter of the whole animal, and consequently there are but few idlers, and the operation is concluded with astonishing rapidity. On the island of Afognak Holmberg witnessed the cutting up of a whale, and testified to the fact that in two hours nothing but the bare bones remained on the beach. The blubber as well as the meat is cut into long narrow strips; the meat is boiled, but is seldom consumed fresh, being deposited in excavations in the ground, where it undergoes a process of putrefaction, and where, according to a Russian expression, it "becomes sour," before it is considered fit to eat. The blubber was formerly reduced to oil in the following manner: It was first cut up into very small pieces, then the old men and women and children who could not assist in the cutting masticated the fragments and spit out the juice into a large dish or kettle; subsequently this liquid was boiled and preserved for future use. Frequently the blubber is mixed with berries or with the boiled roots of the wild garlic, and put up in bladders for the winter.

It frequently happens that a long time elapses between the killing of a whale and the capture of the carcass, and under such circumstances the consumption of the meat causes disease and sometimes death. The Kaniags, however, claim to be able to decide whether the meat is still fit to eat by observing the gulls and other aquatic birds that swarm about the carcass; and if a certain species of bird is absent the Kaniag will not touch the meat.

A variety of wild celery, *cicuta*, also forms a favorite article of diet with the Kaniags; the outside of the stalk being removed with the teeth and the soft pulp inside eaten. Lieutenant Davidof also stated that the roots of certain ferns were preserved in oil and eaten.

In cases of necessity the Kaniags are able to go without food for a long time, and they never load their stomachs before exertion of any kind. After labor has been performed, they give full sway to their gluttony, and their voracity borders upon the marvelous. The following incident, related by Holmberg, may serve as an example:

While circumnavigating the island of Kadiak in a bidarka, I was compelled by bad weather to remain in Killuda Bay for three days with my six oarsmen, and occupied the house of a native who was engaged in fishing; the only occupation of my

men at that time was to eat and to sleep. Before sunrise in the morning a kettle of "yukala" was on the fire, and each man devoured two fish; early in the forenoon our host gave another fish to each of the men; this was eaten raw with whale oil; at noon a supply of fresh salmon was brought in, and sixteen of these were boiled and eaten by my crew; in the evening the morning meal was repeated, so that during daylight each man had devoured at least seven fish, and what they consumed during the night I could only surmise.

After returning to Pavlovsk Harbor Holmberg related the incident to Mr. Murgin, the agent at that place, somewhat apprehensive of being disbelieved, but his story was received only with hearty laughter, and in return he was favored with a similar anecdote which threw his experience altogether in the shade. Mr. Murgin, during a bidarka journey, encamped upon an island late in the evening, and immediately after landing an immense bear was killed by his men. Murgin went to sleep, and after resting six hours he was asked to embark again. Seeing no sign of the bear about the camp he asked what had become of it; the reply was, "We have eaten him up." Six men had devoured the huge bear within a single night. I myself, also, witnessed the devouring of two 50-pound halibut by six men between 10 a. m. and 6 p. m. while delayed by bad weather on Kadiak Island.

As already mentioned, mussels are a favorite article of food with the Kaniags, but it seems that these also are poisonous in certain localities or at certain seasons. One instance is on record where a large number of sea-otter hunters perished from eating mussels in what is now called Peril Strait, in the vicinity of Sitka. An old man named Arsenti, who was present at the time, gave Holmberg the following account of the disaster:

Soon after the new fort had been built at Sitka, I was one of a sea-otter party which had been ordered to winter in Sitka, but when they arrived there Medvednikof, the commander, informed us that he had provisions only for half the party, and that the other half must return to Kadiak; I was among those who returned. When we passed through the straits we had no fish and were compelled to eat mussels, and a few hours later more than one-half of our men were dead. Death took hold of me also, but I remembered the advice of my father to eat raw sticklebacks. I did so, vomited, and was cured.

Previous to their acquaintance with the Russians the Kaniags undertook to make an intoxicating beverage by distilling alcohol from the fermented juice of raspberries and whortleberries, but this was prohibited by the Russian company. Now they all know how to distill alcohol from flour, sugar, and molasses. The use of tobacco has become universal, especially in the shape of snuff; and among other articles of luxury tea and sugar are the most important.

Holmberg expressed his astonishment when he arrived at a Kadiak settlement and learned that the inhabitants numbered from 200 to 300 and lived in only 10 or 15 dwellings; but when he entered one of these houses and beheld the crowded mass of old and young, the matter was easily explained. Each hut was inhabited by three or four or more families; the interior consisting of one common apartment, or cooking or living room, and three or four small partitions to form sleeping rooms. The walls consisted of planks planted perpendicularly in the ground, slightly inclined inward. The rafters generally consisted of whale ribs, which were covered with sticks of driftwood, and a thick layer of sods placed over all. The floor was strewn with dried grasses, and in the middle of it was the fireplace, corresponding to an opening in the roof. Along the walls all the provisions and utensils were piled promiscuously; and all kinds of offal with a penetrating odor of whale oil made the interior exceedingly disagreeable.

The sleeping compartments are generally so low that one can not

stand upright within; they are lighted up sometimes by a small bladder window in the roof. Small as these compartments are they serve as sleeping rooms for several families to stretch out promiscuously upon the plank floor without covering of any kind. One of these little compartments is used as a steam-bath room, for which steam and heat are obtained by means of red-hot stones, over which water is poured; and after the Kaniag has been thoroughly steamed he runs into the sea or river to wash himself, in winter as well as in summer.

The Kaniag canoes are remarkable for fine workmanship and graceful form. They consist of a slight frame of light wood tied together with whale sinews and covered with seal skin, with the exception of an opening for the oarsmen, and are made with one, two, or three openings. Each kind has a different name, but are all known as kaiaks. The three-hatch kaiak is called the bidarka (*paitalik*); the two-hatch canoe is called *kaiakhpak* (big canoe), and the one-hatch canoe, *kaiangvak*. The two-hatch canoes are most generally used at Kadiak. Over each hatch a waterproof apron is fastened (called by the Russians *obtiashka* and by the natives *akvilivak*), which the inmate draws up to his armpits in bad weather, securing it tightly about his chest. The Kadiak bidarkas differ in form from those of other coast tribes, being shorter and broader than those of the Aleuts, and the paddles have but one blade. In addition to these canoes they have so-called "bidars" (*angiak*), much larger and of different grade. The framework for these is constructed similarly to that of the canoe, but is not covered on top, and resembles our boats in shape. They were formerly used principally in times of war and for long journeys, as they hold easily from 30 to 40 persons. Oars are used to propel them, and sometimes masts and sails. At present nearly all of these crafts are in the hands of the traders.

The Kaniags are possessed of great skill in carving figures and other objects from walrus tusks, the material being obtained from the Aliaska Peninsula. They also make very nicely carved snuffboxes of whalebone. Formerly all these objects were worked with stone implements, but the use of iron has long been known to the Kaniags, who used it at the arrival of the Russians. The savages said that iron was occasionally cast upon the beach by the waves [sic!]. The stone implements consisted of hammering wedges and axes made of hard graywacke, knives made of a hard kind of stone, similar in shape, and provided with wooden handles, and tools made of shells served to smooth or polish surfaces. We still find on Kadiak many stone lamps manufactured in ancient times, and roughly fashioned by partially scooping out a piece of large stone. Oil was poured into this excavation, and twisted moss and grass served as wick.

The women are equally skilled in handiwork, especially in all kinds of needlework, making and adorning garments, covering the canoes, etc. They also made bags of the entrails of seals and whales, and ornamented them with feathers and beads of worsted. These bags are waterproof and protect their contents against moisture. The Kaniag women also make baskets and hats, but do not equal the Thlinket women in this respect. They excel, however, in all kinds of embroidery.

The general mode of life of the Kaniags in former times much resembled that of all the coast tribes of northwest America. In the summer they occupied themselves with the chase and the fishery, and the winter was spent in idleness until hunger compelled them to renew their efforts. In former times all the great festivals consisted of gambling, dancing, and feasting in the winter, but the custom has become nearly obsolete.

At the beginning of this century Lieutenant Davidof witnessed such festivals.

The sea about Kadiak Island is exceedingly rich in fish, the most prominent among them being the salmon, of which six species are distinguished—the redfish, the kishutch, the gorbusha, the chavicha, the khaiks, and the goletz, or salmon trout. Each of these species throng the bays and streams at certain seasons of the year, and are easily secured with spears. The natives know so well the time at which each stream or river is visited by certain species of salmon that they rarely make a mistake of a day in their calculations, generally shifting their quarters to such localities just in time for the proposed catch. Of late they have begun to use seines made of whale sinews. Halibut and codfish are caught with hooks similar to those of the Thlinket.

Their arms and implements consist of arrows and spears, the former propelled with bows and the latter from a board. All these articles are made of the wood of the spruce and the Douglas pine, the latter being quite common among the driftwood. The bow is about 4 feet long and has a string of whale sinew. The spear board is about 18 inches long and serves to give an impetus to the spear in throwing it. I noticed among the Kaniags six different kinds of arrows and spears used for the chase of different animals.

Formerly the most important pursuit of the Kaniags was the chase of the whale. Only one species of this animal is known to visit this region, but according to their age the natives designate them by different names. The classification of whales adopted by the natives is as follows: First, the old or full-grown whale they call *annivak;* the half grown, *kavoikhnak;* the third, the yearling, *agashitnak;* and fourth, the calf, *akhvak.* Of these the yearlings and calves are hunted almost exclusively.

In the month of July the whales begin to make their appearance in the bays, following up the small fish and mollusks upon which they feed. Some bays are visited several times during the summer, and the hunt continues sometimes as late as August. For a successful chase, calm, clear weather is necessary. On such occasions the two-hatch bidarkas leave the beach at early dawn for the bay where whales have been observed. Of the two men in each bidarka only the one in front is a whaler, the other acting as his assistant or oarsman, having nothing to do but to propel the canoe in accordance with the other's orders. Having approached to within spear throw of a whale the man carefully notes the direction in which the animal dives and calculates to a nicety the spot where he will probably emerge. If he is fortunate enough to come within 20 or 30 feet of the rising monster the whaler throws his spear, aiming at the middle fin at the back; and as soon as the spear has been thrown the canoe is propelled away as rapidly as possible, in order to escape the violent movements of the wounded whale. It is principally on account of the danger of capsizing that two canoes always go together.

The spear is about 6 feet in length with a slate point. As soon as this point strikes the whale it breaks from the shaft and remains in the wound. The contortions of the animal only assist in forcing the missile deeper and deeper into the yielding blubber. Upon the point of his spear each hunter carves his mark to enable him to claim his quarry. As soon as the whale is wounded he makes for the open sea, where, as the natives say, he "goes to sleep" for three days; on the fourth or fifth day the carcass is cast upon the beach, but if the waves and currents are unfavorable this may occur in a locality remote from the kill-

ace; and it is stated that on several occasions whales that had killed at Kadiak were secured by the people of Unalaska. In nt times the pursuit of the whale was accompanied by numerous stitious observances, kept a secret by the hunters. Lieutenant dof states that the whalers preserved the bodies of brave or dis-ished men in secluded caves, and before proceeding upon a whale would carry these dead bodies into a stream and then drink of water thus tainted. One famous whaler of Kadiak who desired to er Baranof, the first chief manager of the Russian colonies, said to : "When you die I shall try to steal your body," intending thus to ress his great respect for Baranof. On the occasion of the death of haler his fellows would cut the body into pieces, each man taking e of them for the purpose of rubbing his spearheads therewith. ese pieces were dried or otherwise preserved, and were frequently ken into the canoes as talismans.

These observances are no longer in use, but there is still much super-tition connected with the pursuit, and the greatest secrecy is observed n regard to it. Only once had I occasion to notice anything of the kind. This was in the settlement of Killuda, where I entered a hut in the corner of which a young woman lay covered with bear skins; I asked if the woman was sick, and learned that her husband had gone to hunt whales, and that the wife was obliged to remain prostrate without food until his return in order to give him good luck. These people are at least nominally Christians.

The sea-otter chase is now conducted altogether by large parties of from 80 to 100 two-hatch canoes, which assemble at the beginning of May and proceed to distant hunting grounds. It is necessary to await a perfectly calm day, when all the canoes leave the beach together, forming a long line. As soon as an otter is sighted by one of the men he elevates his paddle as a signal, when a circle is immediately formed by 10 or 15 canoes around the spot where the sea otter is expected to rise. When the animal has received the first arrow it dives immediately, but a new circle is formed and the otter is prevented from escaping until, weakened with loss of blood and exhaustion, it finally falls an easy victim.

The sea-otter arrow of the Kaniags is of fine workmanship, and consists of a shaft about 2 feet in length, with a headpiece of bone 6 or 7 inches in length, which by its weight keeps the arrow upright in the water. The point of the arrow is also of bone and is very sharp; it is secured to the shaft with long strings, but is not attached to the headpiece, being set only into a mere socket. When the sea otter is struck the point remains in the body and the shaft impedes the motion of the animal in diving. These bone points are also marked by hunters, and as the otter is rarely killed by a single arrow, usually requiring as many as four or five, the rule is that he whose arrow enters nearest the head becomes the possessor of the skin.

The sea throws up on the shore of Kadiak a so-called sea bean which was greatly prized by the sea-otter hunters and secured by them as a talisman. Holmberg once offered a man 40 paper rubles ($8) for one of the beans and was refused.

The spears used for hunting seals are larger than those just described, and are provided with inflated bladders to serve as buoys; and the bird spears and arrows have three or four thin prongs of bone.

The habits and customs of the Kaniags, their shamanism and religious views, have undergone great modifications. The introduction of the Christian religion and the rudiments of civilization, as well as the

compulsory labor exacted by the Russian company, has done much toward eradicating the traces of former belief and amusements. Only a few old men and women preserve some confused recollections of the heroic age of the people, and these are not easily induced to communicate their knowledge to strangers.

Polygamy was formerly common among the Kaniags, a wealthy man frequently having five wives. Their marriages were accompanied with but little ceremony. The young man proceeded to the father of his chosen, and, after obtaining his consent, was obliged to carry wood and heat up the bath; then both he and his intended father-in-law bathed, while the relatives of the bride assembled for a feast. On emerging from the bath the young man adopted the name of his father-in-law and delivered his presents, taking away the bride to his own home. The first wife always had a preference above all others; and property descended first to the brother, and from him to the son of the deceased who had been previously selected by him as heir.

The position of the women at Kadiak was not as inferior as with most tribes of North America; they frequently enjoy great respect, and had the power of maintaining "assistants" with the consent of their husbands. The "assistant" had no rights as such excepting in the absence of the original husband, and altogether his position was more that of a servant who carried the wood and water, gathered mussels, fished and hunted, etc. This custom was more common among the Kaniags than among the Thlinket.

We find among the ancient Kaniags the same cruel treatment of the young women at the age of puberty which prevails among the Thlinket. At this period the young girl was led into a hut, in which she was compelled to remain for six months in a stooping position upon her knees. After that the hut was enlarged sufficiently to enable the captive to straighten her back, but in this position she had to remain another half year, and was considered unclean and an outcast with whom nobody was allowed to communicate during all this period. At the expiration of the term of seclusion the parents prepared a feast and introduced their child as a marriageable young woman.

The dead were wrapped in seal skins, and if they had been wealthy were buried with spears, arrows, canoes, and skins, and, with singing and weeping over the grave, were praised in accordance with their deserts. On such occasions the relatives cut short their hair and dyed their faces black. After the death of a rich man the widow gave a feast, frequently consuming all the property he had left, the people believing that every man became a spirit after death; and if such a spirit revealed himself to his relatives it was considered a sign of good fortune. The house in which a man had died could no longer be inhabited, and was torn down and a new one erected in its place. Dead shamans or sorcerers were laid with all their implements and insignia in bidarkas, these being generally deposited upon a steep cliff or occasionally in a cave. The memory of the dead was honored in a feast, during which distributions of presents were made and the praises of the deceased were sung.

The Kaniags were inveterate gamblers. They frequently lost all their possessions in a game they called "kaganagah," which was played as follows: Two seal skins were spread out at a distance of 8 or 10 feet from each other, and a flat, round piece of bone about the size of a silver eagle was deposited upon each, the edge of the disk being marked with four black dots. The players, whose number was never more than four, but generally two, divided into two parties, and each put up some article of value. Each gambler had five wooden disks, and these he threw

from the edge of one skin to the other, trying to cover the bone disk. When all the disks had been thrown the players examined their relative positions. If the bone disk had been covered, the lucky thrower received from his opponent three bone sticks or marks; but if he had covered only one of the black dots of the disk he received two marks, and the wooden disk which had fallen nearest to the bone procured for the thrower one mark, and the marks were subsequently redeemed with valuables.

Among the Kaniags there were always a few individuals who possessed some knowledge of medicine, and knew certain herbs, which they applied in decoctions internally or externally. They were quite successful in blood-letting, which they accomplished with lancets made of shells; and they also performed more important operations, such as the cutting out of spear heads, etc.

The festivals of the Kaniags began with certain secret ceremonies, to which women and children were not admitted. Bundles of dry grass were ignited, and prayers imploring the spirits to give success to the hunters were chanted. Then the men emerged from the kashga (kashima, or council or dance house), and the whole population of the settlement ran about with lighted torches. This was the signal for the real beginning of the festival, which was open to all, and lasted as long as the provisions for entertaining the invited guests held out. Boys and girls could not attend until they had been introduced by their father, who on this occasion cut his best garment to pieces, giving away the fragments to the multitude in memory of the event. In the absence of the father the mother or other relative could take his place.

The council house or kashga in which the festivities took place was the property of the whole settlement. At the end of the festival the building was sometimes destroyed and erected anew the following year. Sometimes a Kaniag cut his best garment into pieces at the end of the feast, giving the fragments to the guests in recognition of the honor of their visit. These festivals consisted chiefly of gorging, dancing, and singing. In the diary of Lieutenant Davidof we find the subjoined description of two of such festivals among the Kaniags:

To-day, the 8th of December, 1802, we were invited to a festival, and at 8 o'clock in the evening we proceeded to the kashima, where several spectators were already seated in one of the side compartments. On entering we were struck by almost insupportable heat, there being 60 persons of both sexes seated upon the benches and floor of the small room. The men had all doffed their parkas, on account of the heat, and some were entirely naked. The actors in the performances represented hunters about to set out on an expedition. About a large stone lamp that was burning in the middle of the room several men with drums were seated. These drums were of different sizes, the largest being in the hands of the one who acted as leader. On each side of the lamp sat two girls dressed in kamleikas and decked with ornaments. They had a long piece of bone through the partition of the nose, pendants of glass beads through the lower lips and ears, and the hair powdered with eagle down. Beside these sat two men with rattles in one hand and a paddle in the other. The rattles consisted of double hoops to which the beaks of birds are fastened, producing a loud noise at every movement. Upon the blades of the paddles fish and marine animals were represented. The faces of these two actors were painted red, and the head as well as the back was powdered with eagle down. They wore a headdress of bent twigs; one of these twigs passing through the mouth, like the bit of a horse. The faces were almost concealed with feathers and fern leaves. The men with the drums wore hats with feathers, arrows, and spears; a minute bidarka constructed of skins and implements of the chase were hanging from the ceiling above from the actors, and all these objects were set in motion occasionally by means of a spring in the hands of a man seated at a distance. This man was dressed only in a kamleika. The ceiling as well as the floor was covered with dry grass. The two men seated near the lamp began to beat their drums with sticks; the hunters with paddles in their hands and swinging their rattles in time, and all singing in good voice with but little change of tune. The leader managed the song. Whenever the

drums beat faster the singers began to shout, and all the spectators joined in. The two girls grasped their kamleikas in their hands and swayed from one side to the other. The leader occasionally shouted a few words, such as "Look there! The shore! Let us embark there! He who has not killed anything will see the animals now," etc. Whenever the word "animal" was pronounced all the spectators joined in the great noise, imitating the voices of the different animals. Boys were blowing whistles and the noise was deafening. At every interruption of the song the hunters swayed back and forth and plied their rattles. In the meantime trays with food were carried into the kashima and placed around the lamps; the dishes consisted chiefly of berries and oil. A stone marked with red dots had also been deposited near the lamp; this was said to represent the coffin of the distinguished men in whose memory the festival was given. I could not wait the end of the performance, as I suffered with a splitting headache caused by the heat.

On the 18th of December I attended another festival in the kashima. At first five men, all in different costumes and masks, some of them adorned with ferns, appeared one after the other, the blue thistles attached with a thread to the partition of the nose, and went through the most wonderful contortions. One was painted red, another black; two were attired in parkas, and the fifth in a kamleika; all had rattles in their hands. The first two and the one in the kamleika also had a garment of feathers hanging down to the knees near the lamp; two men in their ordinary costume were seated. I could not ascertain the meaning of this performance. The interpreter said they were men who had devils who betrayed the men, but he did not appear very certain about it himself. All the knowledge of traditions connected with festivals and of the spirits is confined to certain men, who are called by the islanders kassiati—that is, wise men—who invented such representations, and occasionally relate instances of the ancient history of Kadiak and adjoining islands, and the actions of spirits. If a Kaniag can not or will not answer a question he says, "the kassiati knows." After the devils had finished their contortions and disappeared the men began to drive out the women and children. This is generally done after a feast to which guests from distant settlements have been invited in order to talk over matters of importance, but on this occasion this could not be the motive, and the expulsion of women and children could only be attributed to some superstition. When the house had been cleared a man dressed in a kamleika appeared with a peculiar mask before his face and rattles in his hands. He represented the evil spirit, and shouted and ran about in time to a song and beating of the drums.

The wars of the Kaniags in ancient times consisted altogether of ambuscades and surprises, and prisoners were sometimes tortured and sometimes kept as slaves. The wars were chiefly confined to their own tribe, and it is stated that at the time the Russians appeared these internecine quarrels had become so general that during the summer the inhabitants of small settlements intrenched themselves upon steep rocks surrounded by the water. I have seen several such fortified places, and this precautionary measure is easily explained when we consider that during the summer nearly all the able-bodied men are scattered over the hunting and fishing grounds, and those who remain in the settlements are not able to defend themselves against sudden attacks.

An old man named Arsenti Aminak related to Holmberg the story of the discoverer of the island of Ookamak as follows:

The island of Ookamak belonged to my father. He was a very rich chief, as there were ground squirrels on this island in the skins of which he drove a profitable trade. But how he came into possession of the island I will tell you. Formerly our people celebrated festivals with songs and dances, during which the guests were feasted and presented with gifts. For these festivals we proceeded occasionally to the bay of Igats, and sometimes the people of Igats visited us at Ayakhtalik. Once we were preparing for a feast, many years before the arrival of the first Russians, and before I was born, and among others a relative of my father, with an only companion, set out from the bay of Igats in a two-hatch bidarka. When they had left the strait between Sitkhalidak and Kadiak islands behind a dense fog came up, and as the wind changed imperceptibly they became confused and paddled on day and night. When the weather cleared they saw before them an island that they had never seen before. They landed and named it Ookamak. The island was full of sea otters and ground squirrels, and quantities of amber were found on the beach. They remained there a month, and when they left the island the bidarka was filled with treasures. But where to go? They proceeded northward, paddled and paddled until they sighted the mountains of the Aliaska Peninsula, which was strange to

them. They arrived at Katmai, the people of which, being Ogalamutes, were hostile to the Kaniags, though they spoke our language. They threw themselves upon the strangers, robbed them of their treasures, and intended to kill them, but a chief saved them on condition that they should conduct them to the island containing such riches. They proceeded to Ookamak in two large bidars, and killed a great number of sea otters with clubs in a very short time. They also killed ground squirrels with spears, and gathered much amber; then they returned to Katmai. As a reward for their services the chief gave our lost men an escort to the crossing place of Yakolik, from whence they proceeded to my father's house at Ayakhtalik, after having been absent six months and having been mourned as dead. My father received his relative well, and in his joy to have escaped from such dangers he made a present of the newly-discovered island, with all its treasures, to my father.

Voluble as the old man was in relating the deeds of his people in ancient times, he became mute when questioned concerning the old belief of his father. At first he would not speak at all, but finally he said, "I could tell you much, but I fear that it would cause you injury." This threat, however, did not frighten Holmberg, who pressed his demand, obtaining only brief answers to his questions. The little information he gathered is contained in the following:

Shliam Shoa—that is, the master of the world—was worshiped by the Kaniags as the Supreme God; he created the earth and the heavens, but light was not there. He sent two human beings, a brother and a sister, upon the earth, and prohibited them to eat grass. The sister was curious to know what might be the result of breaking the command, and said to the brother, "Probably it will be light when we eat grass." The brother advised her to desist, saying that it might cause them injury, and that they would be ashamed to look upon each other's naked body. The sister, however, could not resist the temptation, and began to eat grass, and behold there was light. They became very much ashamed and wanted to separate. The sister went in one direction and the brother in another, but they could not hide themselves, and finally returned to heaven. Upon the steps leading to heaven they met and began to love each other. Five children that were born to them all died, to their great sorrow. Just before the birth of the sixth Shliam Shoa came and asked, "Why do you grieve?" They replied, "All children born to us died." "Do not grieve any more," said Shliam Shoa, "I will sing you a song and you shall have children thereafter;" and thus it happened. He sent them again to the earth, and from them the human race sprang. At one time a flood (*aliak*) is said to have destroyed the whole human race, but how the earth again became populated the old man did not know. After a fortunate hunt an offering was made to Shliam Shoa, consisting of some animals, sea otters or seals, but never of human beings. The offerings were also brought in advance to secure good fortune. Iyak was the god of evil. He lived in the earth and also listened to the prayers of men, but he chiefly favored the Shamans. When Shliam Shoa is angry at the doings of men he sends out two dwarfs, who make thunder and lightning. In the volcanic mountains of Aliaska there lived men stronger than the Kaniags, who, when they heat their bath or cook their food cause smoke and fire to issue from the summits of the mountains.

An old man of the village of Kagiuak told me that when the Russians landed upon their island his ancestors took them to be cuttle fish, "on account of the buttons on their clothes."

A list of Kadiak local names from Shelikhof's volume will be of interest when compared with those of the present. He mentions—

Kyktag—now Kadiak.
Iliuda—now Killuda.
Oogashik—not changed.
Ooga-alak—now Oogak.
Chinnigak (big cape)—now Chiniatzk.
Agaiakhtalik—now Aiakhtalik.
Kerluta—now Karluk.
Yukutmak—now Katmai.
Katman—probably also Katmai.

The year began with the Kaniagmute in August, which was called Kabiakhgun (the constellation Pleiades was Kabiakhtakh).

September was Tugakhgun (from Tugat, the constellation of Orion).
October was Kancha-oon (when grass withers).
November was Kangushanchak (snow in the mountains).
December was Kagliagvik (rivers freeze).

January was Agvinikh (sixth month).
February was Kypniakhchik (dried fish in small pieces).
March was Koigit annit (river [ice] breaks up).
April was Manikhchikhvak (ravens lay eggs).
May was Manikhchichak (little birds lay eggs).
June was Kaioog ya-at (seals breed).
July was Manag-khet (porpoises have young).

THE CHUGACHIMUTE.—The Chugachimute (Chugach of the Russians), or Chughchil-shvit (their tribal name), inhabit the shores of Prince William Sound (or the gulf of Chugach). They are at present the easternmost tribe of purely Eskimo extraction, numbering less than 500 in all. Their language is almost identical with that of the Kaniagmute, and in their habits, manners, and traditions there is an equal resemblance. Here, as well as among the Kaniagmute, we no longer find the kashga, or kashima; the dwellings are nearly always constructed of logs and planks, affording good shelter during the long, cold winter. Living as they do upon a narrow belt of timbered land surmounted by the inaccessible snow-capped alps of the Chugach range, the Chugachimute have become not only skilled sea-otter hunters and fishermen, but also expert mountaineers, hunting the mountain goat (or sheep) with skill, daring, and perseverance equaling those of any Swiss or Tyrolean chamois hunter. These people are all Christians, in name at least, although they have been neglected for many years by the Russian missionaries stationed at Kadiak and Cooks Inlet.

By their Athabaskan neighbors of Cooks Inlet the Chugachimute are called Tatliakhtana, but, as one of their villages in the northern part of the sound is to-day Tatikhlek, this may have only a local significance. This tribe has always been in contact, both friendly and hostile, with its Athabaskan neighbors in the west and north, and with the Thlinket in the east, and this circumstance may have aided in making their character more warlike and repellant than that of other Eskimo tribes. Their first English visitors under Captain Meares and under Portlock and Dixon, had much cause to complain of the treatment received at the hands of these natives. The Russians also had many a battle with them before they could bring them into final subjection. These early visitors report, however, one custom, of which no trace has been found among any other tribes of Alaska, and which has been considered as belonging to the South Sea islands only. I refer to the exchange of names. Both Meares and Portlock report that they exchanged names with certain chiefs of the Chugachimute, and when Baranof visited Nuchek Island an old man insisted upon exchanging names with the Russian chieftain's dog (Sargach). This was the last instance related of this curious custom, which seems to have been forgotten by the Chugachimute of to-day. In their intercourse with their Athabaskan neighbors, before mentioned, the Tinnats of Cooks Inlet and the Atnahs of Copper River, this tribe does not seem to have indulged in intermarriage; but with the Thlinket, their eastern neighbors, such intermixture has been and is going on actively, forced, probably, by the latter strong and warlike tribe. Toward the end of the last century, when these natives first became known to us, another Eskimo tribe occupied the coast as far eastward as Mount St. Elias. These were the Oughalakhmute (Ougalentze of the Russians), Wallamute and Lakhamute of earliest visitors. This tribe, owing to its position, exposed to the constant attacks and encroachments of the Thlinket, has become mixed to such an extent that at the present day the Thlinket element predominates. Thlinket customs and habits prevail; their houses are built of planks, and in the Thlinket style of

architecture, with circular openings in front. The fur garments or parkas of the Eskimos have been supplanted by the blanket worn by the Thlinket, and even the manufacture of the kaiak has been abandoned and is now forgotton by this hybrid tribe, occupying the lowlands at the mouth of the Copper River and the coast eastward to Comptroller Bay, cutting off the Atnahs or Copper River Indians from the coast. So complete has been the amalgamation that young men of the Oughalakhmute now employ an interpreter in dealing with their Chugachimute neighbors living at a distance of a few miles from them. The present custom among the Oughalakhmute, and the Thlinket farther to the eastward, of obtaining wives from their western Eskimo neighbors, shows clearly how this encroachment has been accomplished.

The burial places of the Oughalakhmute to-day exhibit the houselike sepulchers of the Thlinket, but as yet without the totem.

II.—The Aleuts.

The Aleuts (or Unúngun of Dall, the Takha-yuna of the Kinnatz, or Oonángan, according to Veniaminof and my own observation) inhabit the northern coast of Aliaska Peninsula, from Cape Stroganof westward, and its southern coast from Pavlof Bay westward, the Shumagin Islands, and the whole group known as the Aleutian chain, extending from the Shumagins in the east to the island of Attoo in the west.

The term Aleut applied to these tribes and also to some others by the Russians is of an origin somewhat obscure. Various explanations of its derivation have been given by different writers, but it would seem that it can be traced to the river Olutora on the coast of Kamchatka. The people inhabiting the coast near the mouth of this river were called by the Russians Olutorsky. They were known as the only Kamchatkan tribe who hunted whales, and they were called "strangers" by their Koriak neighbors. It would seem quite natural in view of these circumstances that the Russian promyshleniks on first beholding the Aleutian natives in pursuit of whales would apply to them the name of Olútorsky. On one of the earliest maps of the Aleutian Archipelago, published by Staehlin, we find two groups of islands, one named Aleutsky, the other Olutorsky, the latter being located near the mouth of the Olutora River. As no islands really exist in that vicinity, an equal right could be claimed for both terms as applicable to the Aleutian chain. The initial *O* of the Russian is invariably broadened into a sound almost equivalent to *a* in farther, and the transition from the Olutorsky to the Aleutsky of the later Russians would seem easy indeed. The term of *Oonángan* of Veniaminof I have ascertained to be as universally known to the Aleut people as Mr. William H. Dall has claimed for his version of the same, *Unúngun*. This apparent discrepancy may, however, be ascribed solely to an inability on the part of one or the other writer to distinguish between the finer inflections of pronunciation.

Various other appellations of the people have been collected and published by M. Alphonse Pinart, but they are evidently of local significance, and applicable only to the eastern, western, and central groups of the tribe, respectively.

Of the origin of the Aleut we have no very distinct tradition. The distance between the westernmost island of Attoo and the coast of Kamchatka and the Commander Island is too great to permit of the theory of a general migration over this route from Asia. The two islands of Bering and Copper when discovered by the Russians were uninhabited,

another point in opposition to the Asiatic theory. All such points of similarity between the Aleuts and Japanese as have been reported, as well as the general Asiatic cast of features observed in many of the Aleut settlements, can easily be explained by the constant intermixture of Aleutians with natives of Kamchatka and other parts of Asia in the employ of the Russian invaders. Certain articles discovered in ancient Aleutian burial caves would indicate that formerly there must have existed a constant and more intimate intercourse between the Aleutian and the Eskimo of the continental coast, as kantags or wooden bowls have been found in such places exactly resembling those manufactured on the coast of Bristol Bay and the Aliaska Peninsula at the present time. Remains of huts built with whale ribs, such as the coast Eskimo erect, have been discovered high upon the mountain sides of Oonimak and Atkha islands. These buildings were probably erected in the immediate vicinity of the seashore as it then was, the islands having since risen through volcanic action; and this also would militate against the theory of the original settlement of these islands from Asia. Another argument in favor of the American origin of the Aleut lies in the fact that the settlement of these islands would seem impossible without the aid of the kaiaks peculiar to the Eskimo tribes. The wide passages between the islands, which must have been still broader in the earliest times, preceding the gradual rising of this chain of craters, could not have been traversed by any craft less seaworthy than the kaiak, as the violence of storms prevailing throughout Bering Sea and the fearful current of tides rushing in great bores through these passages would prevent any other craft from crossing from one island to another.

The theory advanced by Mr. William H. Dall, in the first volume of Contributions to American Ethnology, that the Aleutians built their present homes by passing from island to island on rafts, many thousands of years before the kaiak was invented, would seem altogether untenable in view of the fact that no material for making rafts exists or could ever have existed on the Aleutian Islands and the adjoining portion of the continent.

Among the traditions of the Aleutian people concerning their origin we can not find a single one pointing to immigration from Asia. The traditions on this subject, however, that have survived the transition from paganism to Christianity are very few.

We have many traditions speaking of warlike expeditions undertaken by Aleutian chiefs to the coast of the American continent, where they founded new communities; but in no instance do we hear of any communications with the west or the coast of Asia.

One of the traditions of the Aleutian people relating to the origin of sea otters is of interest chiefly because it furnishes the only key to the curious superstitions of sea otter hunters, who, when about to put to sea in search of their quarry, avoid most carefully all contact with women, or the use of any garments or implements that have been used or handled by women. The love of a chief's son for his sister resulted tragically in the drowning of both in the sea. They rose to the surface again, having been transformed into sea otters; but, in remembrance of their progenitors' fate, these animals are said to hold in abhorrence anything that reminds them of the relations between man and woman.

The most careful observer of the Aleutian people was the Russian priest Veniaminof, who resided on the Aleutian Islands and at Sitka between the years 1824 and 1838, and who wrote copiously and under-

standingly of their manners, customs, and traditions. I can not do better than insert here a few extracts from his writings, in translation:

THE ALEUTIAN PEOPLE.

Under the head of "Traditions" the Russian missionary writes:

1. The Aleuts say that in olden times the weather was clearer and warmer, the winds more moderate. This last assertion is confirmed by the first Russian explorers.

2. They say that their forefathers came from their original dwelling places in the west, in the same great land, which was called also "Aliakhskha," that is, continent. In that country there were no storms, no winters, but constant pleasant atmosphere, and the people lived peaceably and quietly; but in the course of time quarrels and intertribal wars compelled them to move farther and farther to the eastward, until they finally reached the seacoast. Later they were even compelled to take to the water. But even on the coast they could not remain in peace, being pressed by other people, and therefore were compelled to seek refuge on the islands; and finally, traveling from island to island, they settled in their present villages.

3. Before the war and dissension broke out among them here they were accustomed to travel (agoulaghan) peaceably to the westward and eastward, to make the acquaintance of other people and their customs; and one of these travelers (agoulanam) succeeded in reaching the northernmost cape of America, which he named Kigaditigan Kamga, that is, Northern Head, and of which he told his people on his return that it was covered with ice, and told of the products of the country and the habitations of the people, who were as much afraid of heat as we are of polar cold, and at the time of the summer solstice they left their villages, fearing to die if they remained. Subsequently the object and direction of these voyages were gradually changed; in place of inquiries into the customs of other people, they began to travel for the sake of trade and traffic, and finally for purposes of plunder and slaughter, and to go to war.

4. The Aleuts consider as their relatives the Kenaitze, Chugach, Yakutats, and Kolosh (but the Kolosh do not acknowledge this). In substantiation of their claim the Aleuts say that one prominent individual, the father of a numerous family, was from necessity compelled to leave his village on Oonalashka; in one summer he collected all his family and relatives, and departed in large bidarkas to the northern side of the Aliakhskha, with the intention to travel (agoulaghan) and to search for a better and richer country. He landed in the first at one of the Aglemute villages and remained, but the Aglemutes did not receive them as friends, but as enemies, and in a general attack put them to flight. The Aleuts, finding it inconvenient or impossible to settle near the seacoast, proceeded to the headwaters of some large river, and having selected a convenient spot settled down for good. Their descendants made peace with the natives of the country and increased, but with their increase came a greater change in their former customs, appearing principally in the greater inclination to war and hunt. After the lapse of much time a quarrel ensued between the descendants of the original Oonalashkans and the creoles or half-breeds, finally resulting in a war. Their village was situated on both sides of the stream, one half opposite the other. They had adopted the habit, for the sake of accustoming themselves to war, of making sham attacks one upon the other, shooting spears and arrows without points; but during one of these sham attacks some one placed a head upon his arrow and hit an enemy in the eye. The attack was at once changed from sham to reality, but as the number of creoles was much larger the Oonalashkans were obliged to leave the place and move farther eastward, finally passing from river to river and emerging upon the shores of the gulf of Kenai, where they settled down once more. The present Kenaitze are their descendants. The creoles left behind increased more and more, and divisions of them were compelled to move to the northeastward, and finally became the founders of the Chugachs, Yakutats, and Kolosh.

5. The Aleuts say that in former times their ancestors constructed deep caves as a protection against sudden attacks of the enemy, and in doing so occasionally found the bones of a larger race of people, whom they called Shougaman or Itangikh-Taiyagoun—that is, the first men, or those who, in their opinion, lived before the flood. These bones and skeletons were mostly found in the third layer of earth, and were rarely found to be fossilized; and whenever such a bone was unearthed a very strong, disagreeable odor spread around, driving away all bystanders. They believe that some time ago there was a large flood, and that up to that time men were of larger size, but their philosophers asserted that half-dead people live everywhere under the surface of the earth.

6. They say that in their old country (they do not know of any other) there was

also a very great flood in punishment of disregard of sacred customs and traditions They express it in their language for "our evil doings the water came upon us."

7. In former times the seashore along the whole group of islands was more deeply indented (in some localities this is even yet perceptible); they also say that the grandfathers of the present Aleuts in their youth heard from their grandfathers that they found on elevated spots, and often far distant from the sea, signs of former dwellings, such as whale ribs and large logs of driftwood. Between these places and the shore line they also found sometimes small pebbles tied with whalebone fiber, such as are now used for sinkers, fish lines, and nets. From these indications the Aleuts came to the conclusion that at some time these elevated positions, showing the remains of dwelling places, were on the seashore, and over the places where the sinkers are now found the sea once extended. But all this was subsequent to the flood.

8. With regard to the volcanoes, the Aleuts maintain in their traditions that in times gone by all the "fire mountains" on Unalaska and Oumnak islands quarreled among themselves as to which had the largest body of fire inside of them, and after a prolonged dispute, in which not one of them would yield to the others, they concluded that a decision could only be made by a trial of strength. Immediately a most fearful conflict ensued, lasting for many days, the mountains throwing fire and rocks at each other in place of spears; the smaller peaks could not withstand the larger ones, and, recognizing their weakness, they bowed down and went out forever. Finally, only two of their craters remained, one on Unalaska—Makushin (Ayak)—and the other on Oumnak, the Recheshnaia (Ismak). These, having vanquished all the others, engaged in a single-handed conflict with the most disastrous consequences to their surroundings; fire, rock, and ashes were thrown in such quantities that all animals inhabiting the neighborhood perished and the air became heavy. The Oumnak crater finally could not keep up with its rival, and, seeing destruction impending, gathered all its strength, jumped up with a bound, and collapsed. The Makushin volcano, being victor and but little injured, and seeing no more enemies around him, gradually calmed down, and now only smokes occasionally.

With regard to early estimates of the Aleut population upon the islands I can not do better than again quote Veniaminof, who wrote as follows in 1840:

The number of native inhabitants of the islands of the Aliaska district, exclusive of Russians and creoles, has been of late very small. In 1834 all the Aleuts belonging to the district, that is, those living in the villages on Unalaska and on the Pribilof Islands, numbered 682 males and 812 females—a total of 1,494 souls. In 1806 the number had been 1,953—965 males and 988 females. Mr. Sarychef, in his voyage, writes that with the arrival of the Russians on these islands the number of native inhabitants decreased greatly, and during his presence in 1792 barely one-third of the inhabitants remained. A consultation of his tables, however, shows that then the males alone numbered 1,235; if we add to this the larger number of females, the inhabitants of Aliaska district in 1792, exclusive of those living on the Pribilof Islands, were more than 2,500 souls. If, again, we take this number for one-third, as Sarychef says, the number of inhabitants in 1750, or about the time of the arrival of the Russians, must have been not less than 8,000.

The traditions of the Aleuts are to the effect that up to the arrival of the Russians their number was ten times greater than Sarychef found it. Old men relate that a long time ago, before the arrival of the Russians, the inhabitants of Unalaska district were so numerous that every island and every convenient location was settled, and that in every village were from 40 to 70 bidarkas, with as many adult males able to propel a bidarka; and if we add to these as many females and twice as many children and old men, it follows that every village contained from 150 to 280 souls, or an average of 215. From personal observations and from tales of the Aleuts I must suppose that in this district 120 villages were located, and thus supposing that each village contained a nearly equal population, it seems that the inhabitants of the Aleutian Islands in their best times numbered 25,000. Doubtless this number is somewhat large, but as far as we can trust to the accounts of Aleuts, as well as of Russians who lived here at the end of the last century, and who saw with their own eyes the destruction of many villages, it seems very probable that the number of the Aleuts once reached twelve or fifteen thousand. Of the reasons of decrease we shall speak below, and only remark here that the decrease of the Aleuts in numbers began long before the arrival of the Russians, and continued steadily down to the year 1822. From that period to 1829 the decrease ceased, and from 1829 to 1838, until the appearance of the smallpox, the number of Aleuts began to increase. The smallest number of Aleuts we find in 1820 to 1821. In 1822 the registers showed 695 males, 779 females—a total of 1,474. From this it is evident that in 1834 the number of Aleuts had increased by 20 males, without counting the females then married to Russians and creoles, who represented at least an equal number. Glanc-

e appended tables of births and deaths from 1822 to 1837, we see that during five years the number of Aleuts born average 34 per annum, and exclusive imate births, 29. During the last nine years, however, the average was 40; › of the illegitimate, 38. Consequently of late the number of births has l nearly fourfold. And here it is also necessary to take into consideration number of females who bore children, or were able to bear them, was, up to y much larger than after that period. This is evident from the fact that of born from 1822 to 1828, 25 were illegitimate, that is, one-seventh of all the ›ut in the last nine years only 17 out of 362 births were illegitimate—less ı 21. The reasons why births were formerly less frequent than of late may y stated as follows:

The absence of midwives and ignorance of managing women in childbirth. › that though a few who are more intimately acquainted with the Russians ›pted their customs before and after the birth of children, being convinced ple and persuasion, but at the present time there are still very many who in their old way.

l. The married women are still very dissolute, and their excesses interfere ›ir fruitfulness, but of late there has been great improvement observed in ect.

In former times the Aleuts were entirely at the mercy of vicious and igno- ıters. It was quite common to force young girls into marriage with the s at too early an age. Of late, however, the teaching of Christian doctrines teracted this evil.

ı. The diseases of various kinds introduced by the Russians have also inter- th the fruitfulness of women, but this cause has now been nearly overcome.

Another obstacle to more rapid increase of population will probably be the fact that the Aleuts suffer from temporary starvation every spring, the nd mothers on such occasions thinking only of their children, and forgetting es to such an extent that in some families the parents can scarcely be recog- their former selves, while the children are fat and healthy.

are the reasons why births were of comparatively rare occurrence among the in former times (in no greater proportion than 1 to 9) and why they are e frequent. It is necessary to remark that in their present mode of life ıt women can not at all compare in fruitfulness with Russian women, having no milk beside their own, they must nurse their children not less ear. It has been mentioned above that in the course of ten years the num- euts increased only by 10 from a total of 1,474—that is, one-fourteenth of 1 per ıt the increase of creoles in ten years was very much greater, showing 31 nong 120 married couples, or about 26 per cent. The reasons why the wives s, who were nearly all Aleuts, are much more fruitful than the wives of ıay be the following: The wives of creoles at the time of birth proceed not g to the Aleut, but according to the Russian custom. All creoles are gen- ›ssessed of means to procure flour and tea, and keep on hand a sufficiency of ns at all times. All creoles are also much better lodged than the Aleuts, at ›o far as they have warmer huts and more clothing and linen than the Aleuts, not in a condition to procure them. The causes of decrease in population he opinion of Aleuts themselves, internal wars, the Russians, and diseases; occurring previous to the arrival of the Russians, were conducted with such hat in retaliation for the murder of one, whole settlements were destroyed; greatest decimation of the Aleut population they ascribe to the Russians, cially to Sollovey, or Solovief, who was the direct or indirect cause of it, as, e of those whom he and his companions killed during the course of two ›t one-third of those who fled before him returned to their habitations. It sed that a majority of those who did not return died from cold and hunger, e younger and healthier Aleuts found means of subsistence and would not ınd these are the first fugitives mentioned here. In addition, it is said that en the slaughter ceased, and the Aleuts, becoming accustomed to the later of Russians, began to live peaceably once more, the population not only increase but decreased very perceptibly for some reason unknown to them. ›es of decrease among the Aleuts of this district may be divided into three First, from the beginning of their internal wars to the first appearance of › among them—that is, up to 1760; second, from the first arrival of the › on these islands to the arrival of the expedition of Billings—that is, up to d, third, from the time of the departure of this expedition until the present ›ach period, in addition to those causes common to all times, has its own auses entirely distinct from each other; that is, prior to the arrival of the › the Aleuts decreased from internal wars; after the arrival of the Russians, ›lence and oppression, but subsequently from being compelled to fit out parties and recruit their columns.

›eriod presents a multitude of more or less important incidents, but I shall ıly of such as are best known and entitled to credence.

THE FIRST PERIOD.—A long time before the arrival of the Russians the Aleuts began to have wars with neighboring tribes—with the Aglemute, and principally with the Kadiaks. Thus it is told that the inhabitants of this district destroyed an Aglemute village on the Nushegak River, at the site of the present rédoute of Alexandrovsk. This victory was so overwhelming that not one of the Aglemute escaped, and a lake situated near the village was filled with blood and corpses. Several times they attacked the Kadiaks and destroyed their villages. However, though these enterprises were bold and frequently successful, it was but natural that sometimes the Aleuts should meet with disaster. It occurred several times that out of the whole contingent of islanders departing upon such expeditions not one returned, or only a few. Mr. Davidof relates that many Unalaska Aleuts perished in Ooiak Bay on Kadiak Island, whither they had proceeded for the purpose of attacking the Kadiaks. Retaliation was the order of the day, and both sides suffered severely. Gradually these wars or warlike raids became of such frequent occurrence that the inhabitants of the Shumagin Islands were compelled either to join the hostiles or to retreat to their fastnesses on inaccessible cliffs or outlying rocks. Locked up in their fortifications, not daring to leave them, they could not secure their winters' supplies and died of starvation. In addition to such wars and mutual attacks of different tribes there was also much internal conflict. It is known that the people of Oonimak attacked those of the Shumagin Islands, Aliaska Peninsula, Unalaska, and even Oumnak and the Krenitzin Islands. The Oumnak people made raids upon the Unalaskans and others. In the course of time the raiders were raided in their turn, and general destruction, amounting almost to extermination, ensued. It is known that of an attacking party of Oonimak people on the island of Amaknak, in Captain's Harbor, all remained on the field of action. Finally the internal dissensions increased to such an extent that not only the inhabitants of one island fell upon those of another, but the people of one and the same island made war upon each other, and inflicted upon each other every imaginable injury. Thus the Aleuts of Oonalga killed several men from a neighboring village on Unalaska simply because they had threatened to kill one of them. There is no doubt that all these wars caused the destruction of a large number of Aleuts in addition to those slain in conflict. For instance, of the wives and children of the Aleuts who perished at Ooiak Bay, on Kadiak, many who lost husbands and fathers suffered want, and the tradition that the Aleut population previous to the internal wars was twice what the Russians found it becomes probable. A few old Aleuts maintain that if the Russians had not made their appearance upon these islands the population would have entirely disappeared by this time. From this standpoint the arrival of the Russians, which had put an end to the internal war and strife, may be considered as a blessing to the hunters.

THE SECOND PERIOD.—When the Russians arrived the internal strife was discontinued and one particular cause of decrease in numbers was removed, but the rate of decrease remained the same. The peace and good understanding established between the Russians who first visited Oumnak and Unalaska islands under the leadership of Glottof lasted but a short time. It is not definitely known who gave the first provocation to quarrel—the Russians by oppression and violence of every kind, or the Aleuts by refusing to submit to the foreign yoke. The first is much more probable, but the last must not be entirely overlooked. Whatever the cause was, the first hostile measures were taken by the islanders, who during one winter destroyed three Russian ships and thereby gave the Russians a pretext for avenging the blood of their countrymen and for adopting stringent measures for their own protection. It devolved upon Glottof and Solovief to wreak unlimited vengeance. Glottof having returned from Kadiak to the island of Oumnak, previously discovered by him, found the friendship and good feeling formerly existing between him and the Oumnak people changed to hostility. In retaliation murder and fire took the place of peace and good understanding. Under the pretext of avenging the death of his countrymen, and partially from fear, he destroyed all the villages on the southern side of Oumnak and the inhabitants of the islands Samalgi and Four Mountains. Solovief, who had arrived on Unalaska from Kamchatka and anchored his ship in Koshigin Bay, treated the poor Aleuts with excessive cruelty, also under the pretext of avenging the death of Drushinin, another trader. Mr. Berg, in his history of the discovery of the Aleutian Islands, endeavors to underestimate the number of islanders slain by Solovief, but for all that he says that Solovief killed 100 men who had attacked the Russian station, and from one fortified village destroyed by fire 200 bodies were thrown into the water. Consequently, it appears from the testimony of this prejudiced witness that Solovief destroyed not less than 300 able-bodied males and youths. Nearly a century has elapsed since these dreadful times, and there is no longer any reason for concealing the deeds of the first Russian promyshleniks nor to exaggerate their cruel treatment of the Aleuts. The facts can not be changed or mended, and, though there is no necessity for parading the dreadful cruelties of ignorant and vicious people, especially as these men were

Russians and my countrymen, I am compelled to speak of what I heard from very many who had been eyewitnesses or heard the same from Solovief's own companions (I have personally interviewed many Aleuts who had known Solovief). This must be done in order to bring forward new evidence of what men will do when left to themselves with unlimited power and no fear of retribution. Without this my account of these people would be incomplete.

The Aleuts say that the Russians shot many of their number with their muskets only for sport, using them as targets, but others deny this; but it certainly occurred more than once, at least in this district, and particularly in the village of Koshigin. It was Solovief who conceived the idea of ascertaining how many human bodies a bullet would pierce, and to this end he ordered twelve Aleuts to be tied together (who were probably not altogether guiltless) and shot at them with his rifle. It is said that the bullet lodged in the ninth man. It is also known that he destroyed two bidarkas of Oumnak Aleuts who had come to visit their kin, and after many single wanton murders he finally found the inhabitants of several Unalaska villages assembled on Egg Island, Sprikin, and fortified. The second attack of Solovief was successful, and he destroyed all the besieged Aleuts, with their wives and children. This slaughter was so general that the sea in the neighborhood was covered with blood from the dead and wounded thrown into it.

Natrúbin, partner and worthy companion of Solovief, destroyed the Aleuts on Avatanok, unarmed and frequently innocent, and it is said that Solovief himself did not kill as many Aleuts as his companions on the neighboring islands. During this time, so terrible to the Aleuts, there were two Russian ships in the vicinity, one at Issanakh Strait and the other at Makushin, the crews of which also destroyed many Aleuts. The Russians on the first vessel, from suspicion or in revenge of the Russians killed at Issanakh, destroyed the four villages on Oonimak Island, sparing only the young females and a few youths. The Russians, under the leadership of their "peredovchik," who had with him a girl from Atkha, left a few men on the ship and proceeded to Oonimak, with the intention of exterminating the rebellious people. Secretly making their way to the first village, they secured all the spears from the bidarkas, where they are always kept by the Aleuts, and broke them; then, suddenly falling upon the defenseless inhabitants in their dwellings, they slaughtered without mercy all who succeeded in emerging from the houses, while the remainder perished in the flames. In the same manner three villages were destroyed. On approaching the fourth, however, situated at the foot of Shishaldin Mountain, they were overtaken by a severe rainstorm and thoroughly drenched and disheartened. The inhabitants sighted them from afar and recognized them as Russians. The chief proposed to meet them outside of the village and kill them, saying that they did not come to them for nothing, but the other prominent inhabitants refused to agree, saying, "Why should we kill them when they have as yet done us no harm?" Consequently, the islanders received the Russians kindly, warming them and providing them with food. The Russians were exhausted to such a degree that they could not descend into the subterranean huts without assistance. The poor Aleuts did not know what they were doing. The Russians, having recovered their strength, at once went to work. Having assembled all the natives under some pretext, they began to shoot them down without mercy. They then proceeded on their way to continue the work of death, but the inhabitants of the next village disputed their entrance into the village, and, making a sudden sortie, killed the peredovchik and his girl, wounded a few, and put the remainder to flight. The place was subsequently called a "dangerous village" by the Russians. It is not quite clear to which ship these Russians belonged—to that of Protossof or to that of Bechevin. It is also related that some Russians destroyed three villages on Ikatak Island and that they fired upon and killed a number of Aleuts who were coming to make them presents of fish.

The second ship at anchor in the Bay of Makushin appears to have been the same mentioned by Berg as being under command of Brigin. The Aleuts of one of the villages in the neighborhood, being informed of the destruction of Drushinin's ship in Captains Harbor, made up their minds to imitate the example of another village. The Russians, however, being warned of their danger, turned the tables and annihilated the plotters.

Horrible as the deeds of these first Russian visitors were, some excuse may be found for them, and in some instances retaliation was absolutely necessary. The doings of later arrivals, however, can not be excused upon any ground. The promyshleniks coming to the islands between 1770 and 1790 followed the example of their predecessors and indulged in the most revolting cruelties. The names of Ocheredin and Polutovsky became especially obnoxious at this period. Of their followers, many are still held in dreadful remembrance by the Aleuts. Among them are Lazáref, Molatile, Peter Katyshevtzof, Shabaief, Kukanof, Sitnikof, Brukhanof, and Malkof. The first two of these were on Akoon Island and the others farther to the eastward. These men placed not the slightest value upon the life of an Aleut. It is well known and authenticated that the first threw over the precipices, cut with knives—which

he always carried with him—and felled with axes a number of Aleuts for no other reason than that they dared to look at his concubine (who died only in 1838). One of those men named let out the entrails of an Aleut girl because she had eaten a favorite piece of whale meat which he had set aside for himself. When we consider all these murders—I do not speak of such cases as are not fully substantiated—and take into consideration the consequences, it would seem that the number of Aleuts slain by Solovief, according to Davidof, is not exaggerated. He places it at 3,000, and even the number of 5,000, mentioned by Sarychef as that of Aleuts murdered by the Russians, is not without probability. Sarychef calls it a moderate estimate.

At last, in 1790, the arrival of the Billings expedition put an end to murder and cruelties and a more peaceable life began.

THIRD PERIOD.—Though cruelties and murder ceased after the departure of Billings's expedition, the decrease in the Aleut population did not cease. Misfortunes of another kind, brought about by dangerous pursuits and voyages, formed a new reason for the decrease of the islanders. Thus at one time Merkulief, an agent at Unalaska, sent 80 families to the Pribilof Islands, of whom less than one-half returned; 32 of these were lost at one time in 1812, in a bidar commanded by Zakharof, and never heard from. A number of others were killed at various times by sea lions.

The occupation of Sitka by Baranof made it necessary to push forward reenforcements of men, and 100 men with their families were dispatched to Sitka in their bidarkas, but only one-third of them ever returned. The rapid decrease in the number of sea otters made a more active pursuit of the animal necessary, involving long voyages from one hunting ground to the other. During such journeys many perished; in 1809 a bidarka with 40 people, in crossing from Oumnak Island to the coast of the peninsula; in 1811 a bidarka with 30 men; in 1824 20 bidarkas which left the Four Mountain Islands were lost; and, finally, in 1828, a bidar with 15 men in the Akutan Straits. In addition to these disasters there were, of course, numbers of less importance. It is impossible to ascertain the whole number of lives lost in this way; it is certain that the number greatly exceeded that of deaths from natural causes. In addition to the causes of decrease already mentioned, there were others that may be called unavoidable and unforeseen causes, such as famine and infectious diseases, both of which were very prominent factors in decreasing the population. Famine made its appearance at the time of the internal wars, according to the traditions of the Aleuts, and it seems that its victims were more numerous than those of battle. Ever since that time famine has been a constant visitor among the Aleuts, before and after the arrival of the Russians, and even after the establishment of the present privileged company. The Aleuts never lay up great stores of provisions, and nearly every year they suffer at least a partial famine during the first months of the year. Their name for the month of March is Khissagounak—that is, "when straps are chewed." This expresses that about that time they had no proper food. It is evident, therefore, that at such a time the least misfortune in hunting may bring about the most dreadful consequences. But what must be the condition in those villages where only women and children remain, the men having perished or gone away by order of the company? This was often the case in former times; indeed, numerous instances of wholesale starvation are known. Under the administration of Burénin all the inhabitants of one of the villages on the eastern coast of Akutan died of hunger, only one old woman remaining to tell the tale. Also, under Petroff's administration, in 1822, seven people died in Koshigin village of hunger, but, thanks to the efforts of the officers and chiefs, such disasters are likely in the future to be prevented, though scarcity of food may still be apprehended.

Of epidemic diseases we have but little information. They have occurred in this district, but the deaths have been less here than in other regions of the colonies. The nature of epidemics in early times is of course unknown, but in 1807 and 1808 there occurred on Unalaska an epidemic called the "bloody fever," which began in the principal village and rapidly spread over the whole district, a very large number of men and young women dying of the same, old people seeming to have been entirely exempt. The greatest mortality was in the principal village. After the wreck of an American ship, under command of O'Kane, the virulent disease made its appearance, the origin of which was ascribed to the eating of wet rice. This disease began to spread, and attacked large numbers, in every case those who partook of the rice. In 1830, in the autumn, an epidemic began and continued until the spring of the following year; thirty people, mostly youths and strong men, died of this disease, but children, old men, and the whole female sex seemed to have been exempt. The greatest mortality from this cause was at Ounga, where the disease had appeared some time before, and extended to the Aliaska Peninsula. On the other islands it was unknown. The last epidemic was the smallpox, which appeared here in 1838. The syphilitic disease was perhaps the most disastrous of all, but the extent of its ravages has not been ascertained. This disease appeared with the Russians, and

committed its greatest ravages about 1798. At that time there were whole families and even villages, from the oldest to the youngest, marked by this dreadful disease. Such a family came under my own observation in Makushin village, but I believe that this family was the last victim of this plague, as since that time I have observed but rare instances, principally in the harbor village during the presence of ships.

THE AGE AND ORIGIN OF THE ALEUTIAN PEOPLE.

To express a definite or authoritative opinion on the subject would be impossible, because there is no definite information concerning it; opinions must be necessarily based upon guesswork up to traditions of the Aleuts themselves and local indications.

Were these islands always inhabited, and who were the first inhabitants—Aleuts or another people? At the first glance upon the islands of the Unalaska district, devoid of timber and poor in products of the land, it becomes evident that the present Aleuts must be the first inhabitants; and it would also appear that they did not settle here very long ago. The traditions of the formation of these islands are not very clear, but we encounter at every step the traces of volcanic revolutions of comparatively recent date. Traces of villages have scarcely been touched by time, and whenever the old men point to a spot where a village existed in former times we can still perceive the ground work of the huts, and even the holes for seasoning the fish, and a luxuriant growth of grasses plainly indicating the extent of the former settlements; therefore we may conclude that the islands have not been inhabited very long, and that the present Aleuts are the first race that settled upon them.

From whence came the Aleuts to these islands—from America or from Asia? The traditions of the Aleuts, chiefly transmitted in songs, say that the Aleuts came from the west, near the great land, then Aliakskhakh, or Tnam Angouna, which was their original habitation, and that they wandered from there to these islands, and then gradually extended to the eastward and finally penetrated to the present Aliaska Peninsula.

Tnam Angouna is now one of the Four Mountain Islands, and in its present condition certainly does not deserve the name of "great land" when compared with any of the other islands. Perhaps it received its name from being the largest of the Four Mountain Islands; but in spite of this some of the Aleuts believe that they originated there. This theory would only be admissible if we were to assume that the Four Mountain Islands at one time formed one body of land together with the Andreianof Islands, and perhaps was united with Kamchatka. But it is much more probable that the Aleuts really came from the west, from a great land—that is, Asia—and their descendants penetrating farther to the eastward, though preserving the tradition about coming from the great land situated in the west, lost any definite idea of the same, forgetting, perhaps, the very existence of Asia, and began to believe that the small island Tnam Angouna was the place of their origin.

The migration of the Aleuts from the westward may be accepted as a fact; and even if the mainland of Asia and the Aleutian Islands were always at the same distance from each other that they are now, the island of Bering is visible in clear weather from Kamchatka, and from Bering the nearest Aleutian island can sometimes be sighted [?]. This would indicate the route of the migration. As to the mode of conveyance by which the Aleuts made their way from the continent, it is most probable that they traveled in canoes and bidarkas, since in former times the weather was very much finer during the summer and clearer than it is now. Such journeys from the Kamchatkan shore to the Aleutian Islands were accomplished even after ships had commenced to make the voyage. We might add that if the Aleuts came from Asia they must have come from Kamchatka, or from Japan over the Kurile Islands, and in that case there should be some similarity, in language and customs and mode of life, between the Aleuts and the coast people of Asia. At any rate, the Aleuts bear greater resemblances to the Asiatic than to the Americans; while, on the other hand, the Fox Island Aleuts, in their appearance, mode of life, and customs, resemble more closely the North American native, especially the Kadiaks. Their language, though differing from that of surrounding tribes, is constructed in the same manner as that of the Kadiaks, which is known to all the tribes inhabiting the coast of North America; and even the language of the Chugachs (Chukches?) is a branch of it. There seems to be no similarity between it and the Japanese, as far as I can judge from questioning the Japanese who visited Sitka.

But even this theory could be overturned by the following question: Supposing that the Aleuts and other Americans speaking the Kadiak language had, some time before the settlement of America, lived in close vicinity, the latter to the southward and nearer to Kamchatka and the former to the northward and nearer to Cape Chukhotsk, but in time being pressed by other tribes they were compelled to migrate to their present residence, the first from Kamchatka to Bering Island and

farther on, the latter probably much earlier crossed Bering Strait to America, and perhaps continuing on their way southward and founding other nations, such as the Kolosh, the Indians, Mexicans, and others. In this case they should not forget the wars carried on, especially between the Aleuts and the Kadiaks. Was not this strife, which existed before the arrival of the Russians, the remnant of wars between them before migration?

We know now that Veniaminof misunderstood the meaning of some of the Aleutian traditions. The Tnam Angounam or Four Mountain group was formerly a center of population among the islands, as can easily be surmised from the large number of ancient village sites and burial caves found here; and from Tnam Angouna other islands were doubtless settled. The name Aliakshakh or Alakshak was always applied to the Aliaska Peninsula.

GOVERNMENT.

Veniaminof wrote as follows on this subject:

Before saying anything of the government of the Aleuts I must refer to their present condition and rights. At the present time all the Aleuts may be said to form a class of laborers, because even their tribal chiefs are only overseers, frequently laboring with their command, and not in any way distinguished from the others. Only of late years the head chiefs, appointed by the commander of the colonies and selected by the Aleuts from their own chiefs, have enjoyed a certain distinction, especially in their intercourse with the office managers.

In former times the Aleuts were divided into three classes—the chiefs, the common people, and kalgi or slaves; the chiefs and their children and relatives and their descendants composed the highest class, prominent in warlike exploits and skilled in the chase. The class of common people consisted of ordinary Aleuts, not differing from servants or laborers, but the slaves were prisoners of war and their descendants.

The right of disposing of slaves was only vested in the upper class; the common people rarely had slaves, and no slave had any authority whatever over another. The power of the master over his slave was almost unlimited; he could punish him with death for crime without incurring any responsibility; he could sell him or trade him for goods; he could give him away or set him at liberty. The price of slaves was nearly always at the rate of a bidarka and a good parka for a couple of slaves, that is, a man and a woman; and of a stone knife, bunch of beads, or a sea otter garment for a single slave. The slave could hold no property; everything he acquired belonged to his master. He was always obliged to accompany his master and protect him in cases of attack, and, in consideration of this, the master was obliged to support not only the slave, but his family. A slave suffering want would bring dishonor upon his master. Good and kind masters maintained their slaves, and especially the industrious and faithful among them, like their own children, and the name of slave was the only distinction between them and the children of their master.

The form of government of the Aleuts may be called patriarchal. Every village consisted always of relatives and formed only one family, where the oldest of the tribe was named Toyone (Toukhoukh), and had power over all, but his power was very much that of a father over a large family; that is, he was obliged to look after the common welfare, and to protect his territory (every village had its grounds set apart); strangers were not allowed to hunt in grounds thus set aside; infraction of this rule often gave rise to wars. That chief was the leader in war, but he had no right to take from his command anything except the share due to his family of all food, furs, or driftwood, whether he was present at the distribution or not; but his share was not greater than that of any other man. With regard to the affairs of the community his power extended far enough to enable him to send out anybody with sons or relatives to execute any errand that might benefit the community, but on his own business he could not dispatch anybody. No special honor or outward respect was shown to the chief. The Aleuts had punishments, and even capital punishment, but the latter could not be inflicted by the chief without the consent of all the nobles. The chief could not begin wars with neighbors without the consent of other chiefs living on the same island, and without the consent of the oldest among them.

A few villages, the inhabitants of which had sprung from one family, formed a state or community where the oldest chief descended in a straight line from their forefathers, who first settled the islands, was the ruler. If no direct descendant was available, the head chief was selected among the other chiefs for his bravery, wisdom, and skill in hunting. He had such powers over the other chiefs as were vested

in the chief of the village over his own people. It was his duty to protect all and avenge insults; in case of war he commanded all the force with the consent of other chiefs, and made peace in the same way. Without his consent no subchief could make war upon his neighbors, or undertake a raid against the Kakiaks, or set out upon any important hunting expedition. Of all that was cast up by the sea he had an equal share with the people of each settlement, and therefore such head chiefs became richer, and consequently stronger, than the others. The respect in which the head chief was held by the neighboring tribes depended entirely upon the influence which he wielded over his own subordinates. The principal chief, with such powers and rights, may be called the ruler of his island or district, but the Aleuts never had any chief or ruler who had the right to dispose arbitrarily of the whole community.

I have already remarked that the Aleuts have capital punishment. The murderer and the betrayer of community secrets were punished with death. When it had been reported that an Aleut had committed a crime worthy of death, the chief assembled the council, composed of all the nobles and old men and himself; he laid the matter before them and asked their opinion, and when all were unanimous in judging the accused as worthy of death, all the males seated themselves in an open space, armed with their spears. The culprit was also brought out, surrounded by a few young men at the command of the chief, and suddenly, at a preconcerted signal, they thrust their spears into him. If after this he was still alive one of the warriors was ordered to stab or cut him to death. It must be remarked that it was not necessary to keep the culprit guarded or to bind him during the punishment, because every criminal endeavored to make the greatest display of indifference in the face of death. He never wasted words in exoneration or in appeals for mercy; he walked upright and fearlessly to the place of execution, in order to make his name famous among his people. Many of such executed criminals are still praised in the songs transmitted to their descendants.

Other less important crimes were punished at first by reprimand by the chief before the community, and upon repetition the offender was bound and kept in such a condition for some time. This was a great disgrace; in rare instances the men thus tied were beaten. The law with regard to slaves was more strict and better defined. For disobedience the ears were cut off; for insolence to the master, lips were severed; and if any evil resulted from indiscretion on the part of slaves, such as war or quarrels, the offender was put to death. For the first attempt to escape they receive corporal punishment; for the second, their hands were tied at their back, and in such condition they were kept a long time; for the third attempt they were hamstrung; and for the fourth attempt the punishment was always death. The mode of putting slaves to death was entirely different from ordinary executions. They were not speared, as other people, but killed with clubs. For the first theft (which was considered a very disgraceful crime, especially when the slaves stole from strangers), corporal punishment was inflicted; for the second offense of the kind some of the fingers of the right hand were cut off; for the third, the left hand and sometimes the lips were amputated, and for the fourth offense the punishment was death.

The power of the chiefs and all the rights of the Aleuts were in full force at the time when the population was greatest. Interior wars decreased the number of Aleuts, and at the same time the power of the chiefs and their own privileges, but with the arrival of the Russians the latter were entirely extinguished, and even the power of the chiefs remained only a shadow. Solovief and his companions, who undertook the work of pacifying, or rather exterminating, the Aleuts, first lessened the influence of the chiefs over their people. The Russians who followed in their wake also adopted this policy, until the chiefs were distinguished in no way from other Aleuts, being exempt neither from labor nor from punishment. In course of time the Aleuts began to look upon the chiefs as their equals in every other respect. Our Government empowered the commanders of naval expeditions that visited this region between 1792 and 1823 to confer bronze, silver, and gold medals upon the chiefs, and the new regulations of the Russian-American Company provided for the distinction of chiefs from common people, restoring to them a portion of their former power. It is difficult, however, to restore or establish what has no stability in itself. Of late years (1832) the colonial government found it necessary to set up in this region two or three head chiefs selected by the Aleuts themselves from the number of tribal chiefs and confirmed by the chief manager of the colonies. And thus the present government and management of the Aleuts depend altogether upon the Russian-American Company, acting through the manager of the Unalaska district, who, on the strength of his office, gives directions and orders to the "bidarshiks" for transmitting the same to the Aleuts through their chiefs; or the manager consults with the head chief and a few others, and explains to them his orders concerning hunting and similar subjects, asking them how many bidarkas they can furnish for the sea-otter parties, and how many men for shooting birds, etc. The present rights and duties of the Aleuts are as follows: They enjoy the protection of the law

equally with the serfs, but they are exempt from all duties and taxes. As an offset to this, they are obliged to serve the company from the fifteenth to the fiftieth year of their age, receiving pay from the company for their services. All furs which they may obtain must be sold exclusively to the company at certain prices established by the Government.

It may be asked, Is the present government of the Aleuts and their present condition good? I answer, It is good; because the Aleuts, aside from their service with the company, enjoy complete liberty, and their service is only temporary and always for pay. The company takes good care that the man appointed as the manager of the Unalaskan district be a man of good intentions and executes strictly the directions of the colonial government. The Aleuts have not recovered their former liberty, but there is no necessity for changing their present condition for any other. Any change could only be injurious, and even disastrous. It would be perhaps desirable that the Aleuts should receive for their furs prices somewhat commensurate with those charged for goods, and also that their head chiefs should have the right to look at the accounts of the Aleuts kept at the various offices, and that all the chiefs be furnished with written rules and instructions for their guidance. Such changes as these might prove beneficial to the various communities.

RELIGION AND BELIEFS.

The religious belief of the early Aleuts was an outgrowth of shamanism as found in the Asiatic possessions of Russia. The Aleuts believed and acknowledged that there is and must be a creator of everything visible and invisible, and who was called by them Agoughoukh, that is, creator; but, having only a limited understanding, they did not connect him with the management of the world and showed him no particular respect. Worshiping no one being, they soon came to worship everything that seemed of importance to them. As rulers of everything in their surroundings they have acknowledged two spirits, or two kinds of spirits, who regulated the fate of man in every respect. The first they called Khougakh and the second Aglikhaiakh. Some of these worked blessings to man and others only evil, but how far their influence extended and the limits of their power, even their best theologians could not define.

Among the earliest Aleuts there may have been worship of the light and of celestial bodies. The first may be surmised from their custom of saluting the light.[1] The second supposition is based upon the fact that they were always afraid, and still show reluctance to say anything bad of the celestial bodies. The old men told the youths that anybody speaking ill of the sun—for instance, complaining of its heat or glare—would be struck blind and never see its light again. The moon was supposed to kill its slanderers with stones; and whoever censured the stars would be compelled to count them or else lose his life. If, in the summer time, upon a clear and calm day, some youth would complain to his companion of the heat and regret the winter, with all its storms and famine, such carelessness was always punished by the sudden appearance of violent gales and storms, and if the offense was repeated the winter would always make its appearance earlier and with greater severity than common. In this way the young Aleuts learned to display the greatest indifference to all changes of weather and temperature.

The Aleuts believed that there were three worlds, each with its separate beings and doings. The first world—which was called Akaean Kughoudakh, that is, the highest world, where there was no night or evening, and where a multitude of people live forever. The second world was our globe. The third was subterraneous, and called Sitkoughikh Kouyudakh, where there was also a multitude of people, whether mortal or immortal was and is not known. They had no temples, but there were sacred or hallowed localities called Aoudeagadakh, and also sacrifices to invis-

[1] This early custom is described as follows: The grown men were in the habit of emerging from their huts as soon as day was breaking, naked, and standing with their face to the east, or wherever the dawn appeared, and having rinsed their mouths with water, saluted the light and the wind. After this ceremony they would proceed to the rivulet supplying them with drinking water, strike the water several times with the palms of their hands, saying: "I am not asleep; I am alive; I greet with you the life-giving light, and I will always live with thee." While saying this they also had their faces turned to the east, lifting the right arm so as to throw the water dripping from it over their bodies. Then throwing water over the head and washing face and hands, they waded into the stream up to their knees and awaited the first appearance of the sun. Then they would carry water to their homes for use during the day. In localities where there was no stream the ceremony was performed on the sea beach in the same manner, with the exception that they carried no water away with them.

ible spirits. The first could be found in every village, being generally some rock or cliff or other prominent place. The females and young men were strictly prohibited from visiting such places, and especially from gathering the grasses and weeds growing upon them. Any infraction of this prohibition on the part of bold or curious youngsters was sure to be followed by disease and speedy death. In a few instances insanity was the consequence. The adult males could visit these spots at certain times, and only for the purpose of sacrificing.

The offerings (Âkhakhilik—that is, "All his to him he gave") were of two kinds, one optional and the other defined. The first sacrifice consisted of almost any object, principally the skins of animals, which were brought to the sacred spots with trifling ceremony and prayers for assistance in war or the chase. The second sacrifice consisted of the tail feathers of cormorants and a few other birds, only worn by men. These sacred places were protected only by prohibition. The modus operandi consisted of the votary's taking a certain number of feathers, smearing each of them with some paint, generally green or red, and throwing them to the four winds and uttering his request to the invisible spirits every time that the feathers escaped from his fingers. When the sacrifice was completed the man simply said: "Now give me what I ask."

The early Aleuts had shamans and shamanism, but what their sorcery consisted of is now difficult to ascertain, beyond the fact that it was accompanied with the usual accessories of songs, dances, beating of drums, and contortions. The shamans here as elsewhere called themselves mediators between the visible and invisible world—between men and spirits; and the mass of the people believed that they were acquainted with demons who could foretell the future and aid these sufferers, and therefore turned to them for aid in dangerous sickness or misfortune, asked them for good luck in hunting, long life, rescue from danger at sea, the calming of gales; and also those who were not accoucheurs called them into their houses in cases of difficult birth.

Concerning their knowledge of the future the old Aleuts assert that some of the more prominent shamans had foretold, long prior to the arrival of the Russians, that white men with strange customs would come to them from the sea, and that subsequently all the Aleuts would be transformed to resemble the new arrivals and live according to their customs. They also asserted that at the time of the first appearance of the Russians they saw to the eastward of their islands a bright light, or large star, containing many people resembling the newcomers, but in the lower world few people remained, and impenetrable darkness set in.

In spite of all their knowledge and power and their efforts to impose upon the ignorant, the shamans were not held in much respect, being scarcely distinguished from other people. Though helping other people they frequently were themselves in want of assistance and were forced to apply to others. They perished from hunger and accident, like their fellows. It was a very rare occurrence that the son of a shaman adopted the trade of his father; probably the shaman on his deathbed forbade his son to do so, explaining to him the worst side of his position, and turning his desires into another direction. Many of the shamans called their occupation "service of the devil," and told the young men that nobody who had any fear or apprehension must lay claim to the title of shaman, and that they themselves had not adopted the profession voluntarily, but because they were powerless to resist the devil. The Aleutian shamans said they could not summon spirits (as the Koloŝh do), but that the spirits made them their servants. They claimed that from the age of 15 years the devil begins to trouble them with constant apparitions and delusions; while hunting at sea they would constantly see an island rise before them, or immense cliffs bar their way to the shore; traveling on foot they would be tempted from their paths by other kinds of apparitions in the shape of animals or marvelous beings, until they were bewildered and willing to submit to their inevitable masters. It is known that the Aleutian shamans have nothing whatever to do with marriages, births, or the bringing of sacrifices.

The Aleuts had an indefinite belief in the immortality of souls and in a future life. This becomes evident from the fact that prominent individuals on their death directed the killing of slaves to serve them in the other world as they had done here. They could not say what the condition of souls was in the future world, but the slaves considered it a favor and an honor to be sent with their master, and therefore we may conclude that they expected to live pleasantly in the coming life.

They all believed that the souls of the dead, or, as they called them, "shadow," remained invisible among their people, accompanying them on land and sea, especially those whom they had loved, and that they were in a condition to do good as well as evil. Therefore the living called upon the dead in times of danger, especially in wars undertaken for avenging insults to the tribe.

With regard to the origin of the first man the Aleutian theologians are not unanimous. Of all their various theories, either very absurd or grotesque or very similar to our sacred history, I present here only two. One says that at the beginning the

earth was vacant, inhabited by nobody; but at one time there fell from heaven to the earth two beings somewhat resembling man, but they had long fur all over their bodies. From them sprang a couple of similar beings, but without the fur; and from this couple again came all the people, and began to spread out to the East and North (they do not mention the South, they did not suppose the people could live there). The place where these people originated was warm. There was no winter, no gales, but a perpetually pleasant climate. The first human beings were long-lived, strong, and hardy. At the beginning the people lived peaceably and in friendship, knowing no dependence or independence, no quarrel, and no wants; but with the increase of people want and necessities appeared, and in their train the art of making arms or hunting animals. Then came dissensions and wars, and the arms were turned against men. Want and the oppression of the weaker by the stronger compelled the former to migrate from their original habitations, and thus the world was peopled.

Others say that before any people appeared on Unalaska or other parts of America there was, on the island of Unaska, one man (his name is not known), who, having lived for a long time in utter solitude, began to think that perhaps somewhere in the world there might be other people like him, and therefore, with the intention of searching for his fellows, he concluded to travel. He constructed a boat—a kind of bidarka—called ouliliak. At first he circumnavigated Unaska, and finding nobody there he went on to the island of Four Mountains. There, also, he found nobody. Finally he proceeded to Oumnak and, landing upon its western extremity, went ashore and at once saw a human track. A short time elapsed and a woman walked up from the beach in grass boots. He was not long in making her acquaintance, and as she suited his taste he made her his wife. From this couple sprang all the people inhabiting the northwestern part of America. The first fruit of this union was a dog; the second, a very strange being of the male sex with wings, who, when he grew up, began to say to his parents, "I am not like men; you have no share in me." The mother having heard this remark several times, and seeing that he actually was not like them nor apt to propagate the human family, and consequently would only work evil, proposed to her husband to kill him, and the father consented. When they had killed him with their own hands a son was born to them, and then a daughter, perfect human beings, and from these last couples people began to multiply. But their children moved away from them, and some spoke different languages. The difference of speech induced them to scatter all the more in all directions, those speaking one language settling together, and those migrating to the eastward founded the various nations of the mainland of America.

The superstitions of the Aleuts were innumerable. Every action or undertaking or every step required its own observances and talismans. Of the latter the most common was a girdle plaited of sinews and grasses under invocations; and certain pebbles, called by them "chimkikh," cast out by the sea occasionally. (This pebble resembles in shape a turnip, but is hollow inside, smooth on the outside, and of two colors, one entirely white with yellow rings, and another red with white rings. The first were called male and the other female pebbles.) The first talisman was worn on the naked body as an unfailing protection from death during hostile attacks or encounters with animals. Possessed of this charm a man would conquer everybody and everything without injury to himself. In spite of the fact that the material of these girdles was of no value whatever, they were by no means plentiful, and passed as heirlooms in families from father to son, or from uncle to nephew, with certain ceremonies. The second talisman was exceedingly rare, and therefore very highly valued. The fortunate individual that found such a one preserved it in some secret and clean place, and never looked upon it until the house was quiet and after having washed his hands, and never unless some dreadful danger threatened. This pebble was only taken from its resting place on sea-otter expeditions, when it served as a charm to attract the coveted game. The lucky possessor was always fortunate in the chase. He did not hunt the sea otter. The sea otter gathered around him and gazed at him with loving eyes.

To secure success in fishing, they attach charms to the line and hook consisting of small fragments of roots, weeds, or anything green or colored.

The pursuit of whales was encumbered with many observances and superstitions. The spear heads used in hunting the whale were greased with human fat, or portions of human bodies were tied to them, obtained from corpses found in burial caves, or portions of a widow's garments, or some poisoned roots or weed.[1] All such objects

[1] Aleuts assert that some of the corpses found at the present day in caves on one of the Four Mountain Islands were in the same condition in their earliest times as they are now. They are lying together, one besides the other, clothed in dog-skin parkas; their beard and hair are reddish, the skin of the body black; and from these corpses the hunters endeavored to detach some pieces of the body, or perhaps a fragment of clothing. The hunters who obtain such charms are always fortunate in their pursuit, but meet with an untimely and painful death. They begin to putrefy while yet in their prime.

had their own special properties and influence, and the whalers always kept them in their bidarkas. The hunter who launched a spear provided with such a charm upon a whale at once blew upon his hands, and having sent one spear and struck the whale, he would not throw again, but would proceed at once to his home, separate himself from his people in a specially-constructed hovel, where he remained three days without food or drink and without touching or looking upon a female. During this time of seclusion he snorted occasionally in imitation of the wounded and dying whale, in order to prevent the whale struck by him from leaving the coast. On the fourth day he emerged from his seclusion and bathed in the sea, shrieking in a hoarse voice and beating the water with his hands. Then, taking with him a companion, he proceeded to the shore where he presumed the whale had lodged, and if the animal was dead he commenced at once to cut out the place where the death-wound had been inflicted. If the whale was not dead the hunter once more returned to his home and continued washing himself until the whale died.

For hunting the sea otter such poisoned spears were not used, but as the Aleuts believed that the sea otter was a transformed human being they endeavored to ornament their bidarkas, their garments, and their spears as much as possible, in the belief that the sea otter would be attracted by the beauty of the outfit.

Of the many superstitions concerning health, long life, etc., I know only of their fathers and uncles endeavoring to obtain the viscid expectorative matter from the throat of some old man, famous for his achievements and of irreproachable character, who had been healthy, and compelling their children or relatives to swallow it as a preventive against all violent and epidemic diseases and as a general strengthener of the body. Such old men, in dying, frequently blessed their relatives and gave them some of their gray hairs, or fragments of their clothing, or arms which they had carried in wars, and ordered them to preserve them as charms against misfortune and disease.

The females had their own observances and customs at times of birth, etc., of which I do not know the particulars, and perhaps they are not worth knowing.

It is remarkable that with their talismans and invocations and other superstitious ceremonies it is a rule to admit no female and to impart no knowledge of these ceremonies to the other sex, the greatest disaster being threatened in case of infraction of this rule. For instance, a whale hunter who had violated this law would be seized, before the stricken whale had yet expired, with violent nosebleeding and swelling of the whole body, often ending in insanity or death. The sea-otter hunter was not subject to such terrible punishments, but he met with misfortune in the chase, and though surrounded by sea otters could not kill a single one—the animals laughing at him, gathering around his bidarka, and throwing water into his face in sport. The same happens to sea-otter hunters whose wives prove unfaithful during their absence, or whose sisters are unchaste. The same strange conduct of the sea otters was sometimes observed toward the lazy, evil disposed, or disrespectful toward the aged. It is impossible for any belief to exist without some moral lesson contained in it, and we may consider that even the superstitions of the Aleuts led toward cleanliness of body, a careful execution of their duties, no matter how absurd, and respectfulness in demeanor.

I will endeavor to give here briefly the moral code which, I believe, is evidently contained or hidden in the mass of superstition among the early Aleuts:

First. The old men said it was necessary to respect parents, because they gave us life and nursed us in sickness and brought us up with great trouble, full of kindness, and deprived themselves for our sake without knowing what we would do for them, and, therefore, we should sincerely love them, do all we could toward their support, remain with them and care for them until their death; if they should become blind or feeble we should take them by the hand and lead them. To disregard one's parents was considered the greatest and most dishonorable of crimes.

Second. If one had no father he should respect his oldest brother and serve him as he would a father, and a brother himself must always aid his brother in war as well as in the chase, and each protect the other; but if anybody, disregarding this natural law, should go to live apart, caring only for himself, such a one should be discarded by his relatives in case of attack by enemies or animals, or in time of storms; and such dishonorable conduct would lead to general contempt.

Third. Feeble old men must be respected and attended when they need aid, and the young and strong should give them a share of their booty and help them through all their troubles, endeavoring to obtain in exchange their good advice only; and whoever acts thus will be long lived, be fortunate in the chase and in war, and will not be neglected when he becomes old himself.

Fourth. The poor must not be neglected, but assisted; not only not abused, but protected against abuse, because man does not always remain in the same condition, and even in the richest and most powerful tribes, as well as in the lowly and poor, sometimes quite unexpectedly their conditions change, and the rich will become poor and the poor rich, and therefore—

Fifth. During poverty they should be humble and respectful and not offend the rich who divide with the poor.

Sixth. We should be hospitable; every visitor should be received as liberally as possible, and feasted in order that he, on his return to his people, may speak of us with praise.

Seventh. All who move to another village are called strangers during the first year, and such must not be abused, but aided and assisted in every way, and considered as of the people. Under such they will sooner forget their own home and become accustomed to the new; and in case of need will be defenders of the village.

Eighth. We must not be forward; it is better to listen than to speak in every condition of life. That is what made people in olden times long lived and strong, because they talked but little. Every evil and misfortune springs from the tongue; therefore in olden times those who caused common misfortune by imprudent talk were frequently punished with death.

Ninth. The children were instructed to be kind in their intercourse with others; to refrain from selfishness; to be bold in case of hostile attacks, and disdain death, and to strive to accomplish some famous deed, such as avenging the death of their relatives, and so forth.

Tenth. The following offenses were considered as worthy of death or punishment: For instance, to abuse a companion without cause by word or deed, or to kill him (but to kill an enemy was quite another thing); to take another's property; to steal or rob (theft was not only a crime but a disgrace); to betray secrets of the councils of war; to grumble at severe weather, cold, wind, or heat of the sun; to talk unnecessarily and unfavorably of stars and clouds; to defile in any manner a sacred spot, or a stream of running water, so as to prevent fish from coming up, or to disturb the sea in the vicinity of the village, and thereby drive away the fish or game. Girls or unmarried females who gave birth to illegitimate children were to be killed for shame and hidden; their children were called "anikshoum agoucha," that is, "hidden children."[1]

Incest was considered the gravest crime and was punished with great severity; it was believed always to be followed by the birth of monsters with walrus tusks, beard, or other disfiguration.

The Aleuts still maintain that a failure to observe the customs of their forefathers, and especially a willful neglect of the same, is attended with all kinds of disasters and punishments. They always return good for good and evil for evil. It was considered praiseworthy to go to sea in times of gales and to make difficult landings. As a proof of such achievements they would mark their bodies in some way to indicate that they had been on some inaccessible cliff, or that they landed unassisted with their bidarka at some spot where nobody had yet landed before. But still more praiseworthy it was to be brave in war. The first duty was to be kind to strangers, because their forefathers had been travelers, and they had all sprung from one father and one mother.

The light is the life-giving principle; running water gave strength to the body, but the sea water was still stronger, making men fearless and invincible. Therefore, whoever was in his youth afraid of the sea would be forced to bathe, and thereby be made strong and brave.

One of their sayings was, "The wind is no river;" that is, the river runs always and never stops, but the wind sometimes stops. Another saying was, "A bear is not a man;" by which they meant that a bear is not so revengeful and bloodthirsty as a man. Another saying was, "Not out of every sweet root grows a sweet plant;" that is, good children do not always come from good parents.

The teachings of their faith and all customs were transmitted in two ways, either

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[1] The Aleuts said and still maintain that illegitimate infants killed from shame would begin some time after being buried to cry and weep like new-born babes, and finally they would begin to walk around at night in the villages, appearing like little clouds, weeping also, and when many such children were observed the fathers of families assembled and tried to find out the guilty persons, and if the culprit would not confess they sometimes proceeded to torture. The kindest father would not screen his favorite daughter in such a case; but when the guilty person was discovered she was smeared with paint and placed in a dark and bleak hovel. Here she was seated in a corner and covered with a grass mat with two slits so as to expose the breast, and then she was obliged to sit in that position night after night in order that the hidden child might come and nurse and not disturb the virtuous women. Whenever there was evidence that a woman had nursed an infant during the night her sin was forgiven. Sometimes a woman thus locked up would cry out in the night, and the men, with arms in their hands, would hurriedly enter the hut, when in her arms was found not a babe, but a small black bird. This bird was killed with certain ceremonies and torn into small fragments, and the nightly disturbance ceased forever.

from father to son, or, more frequently, from uncle to nephew. This teaching may be called domestic. Another manner of propagating their doctrines was communal or public, when the teachers were not shamans but old men who had lived to a great age and become famous for their achievements and disinterested life. Such old men considered it their duty to teach the young on every occasion, and this was done nearly every day, in the morning and in the evening; that is, when all were at home. The old man would go to the middle of the barabara for this purpose and seat himself, and all the young people would surround him and listen attentively to all he said; even if he repeated the same advice for the hundredth time they would listen to him with respect, because they considered it their duty to do so.

Now let us speak of their present faith. The Aleuts, as well as the Kadiaks, are baptized Americans (i. e., natives), and are of the Greek-Russian faith, which they adopted from Russia. The Aleuts may justly be called exemplary Christians, because they abandoned shamanism as soon as they received Christianity; not only the outward signs of it, such as masks and charms, which they used in their dances and invocations, but even the very songs in which they transmitted the deeds of their ancestors and their former beliefs and customs were all forgotten without any compulsion. The first to convert and baptize them was the Ierodiakon (or holy monk) Makar (a member of the Kadiak mission), who had been sent to the Aleuts from Kadiak in 1795. He did not have recourse to any violent measures in inducing them to be baptized, and if he had been inclined to forcible means he had not the power. The Aleuts received the new belief very willingly. The best proof of this lies in the fact that Father Makar traveled from place to place, to the most distant villages, without having any protector with the exception of one Russian servant. The Aleuts themselves transported him from place to place, fed him, and protected him on his errand of baptism. And from that time to the present the Aleuts have been God-fearing and religiously inclined. They willingly assemble for prayer wherever there is an opportunity for service, and especially when they are visited by a priest. During service of prayer they stand in rapt attention and admiration, without turning to one side or the other, and without shifting from one foot to the other, no matter how long the service. At the end one may look at the prints of their feet and count how many there were; and though they understand but very little of the teachings of the church they never slacken their attention during the service. All religious observances required of them they fulfill to the letter. I need not mention that they strictly observe the fasts, because hunger goes for nothing with them for two or three days at a time. But nothing pleased me so much as the willingness, or rather the ardor, with which they listened to the word of God, their ardor being so great as to fatigue the most earnest teacher. This I can assert from personal experience. During my journeys among them, whenever I arrived at a village, all at once left their avocations, no matter how important to their immediate or future comfort; they collected around me at the first signal, all listening to me in rapt attention, forgetful of everything else; even tender mothers sometimes disregarded their crying children, whom they had left behind in their huts. The strong and healthy would carry the old and feeble to the place of meeting.

When we compare the Aleuts with the Kadiaks, their neighbors, in a religious sense, there seems to be a great disparity. The Kadiaks practice shamanism to the present day and all their former superstitions are still in full force, while among the Aleuts the former does not exist at all and the latter have almost disappeared. Only about one hundredth part of the Kadiaks fulfill these observances to any extent and very few show any ardor or interest, while the Aleuts are, in that respect, not behind the best Christians of our time. Such a difference is all the more astonishing because the Kadiaks have enjoyed the benefits of missionaries among them since 1794, but the Aleuts have had a resident priest among them only since 1824, having up to that time seen only Father Makar, their baptizer, once, and for a very short time, and also two chaplains of naval vessels, in 1792 and 1821, also for a very short period, and then only at the principal village. This is not a place to decide why the Kadiaks, with every facility for christianization, have remained only half Christians, but it would be very curious to find a reason why the Aleuts so commonly and almost suddenly changed their belief—their simple and easy belief—for the very strictest, and why they show so much more interest than their neighbors. The principal reason for this I believe to lie in their character. The Unalaskans have more good qualities than bad, and consequently the seeds of the word of God find better and deeper soil and grow with greater speed. It must be acknowledged, however, that the contempt in which the shamans were held facilitated the work of the mission. Any other stronger reason inducing the Aleuts to accept their faith I can not find. It is true we may say the Aleuts accepted Christianity because they had only a very vague and unsatisfactory belief that did not satisfy the demands of their souls, and that they had reason to fear the Russians and were eager to please them; and, third and last, because the acceptance of Christianity exempted them from the payment of tribute. All these reasons may have induced them to change their faith.

but certainly could not make them the earnest observers of its rules that they are; but when we come to scrutinize these reasons they appear but weak. It is true that their former religion was unsatisfactory, but could the Christian faith be any more so to them at first? In the absence of good interpreters they could have but incomplete understanding of God and his attributes; and could even that Christian faith be satisfying to their hearts when the first preacher of the same could not express himself sufficiently well in their language to explain its most beneficial mysteries, and forbade their own custom of polygamy? The Aleuts are very subservient, but we must acknowledge that the Russians never attempted to compel them to baptism in any way. The most powerful reason may be considered the exemption of new converts from the payment of tribute, especially since they thereby escaped the dreaded oppression of tribute gatherers, but if we consider the trifling value of such tribute, which they pay only at their option, and also that the exemption only continued for three years, even this reason appears insufficient to account for their earnestness in accepting the new faith.

The Christian faith was carried to America (I mean only Russian America) by the Russians. The commander of the first vessel which discovered the Aleutian Islands, Glottof, and his companions, were the first propagandists of Christianity in America. Glottof, during the first time of his stay at Oumnak, in 1759, established such friendly relations with the native inhabitants that the chief allowed him to baptize his son and to carry him away to Kamchatka. He lived here several years, and learned the Russian language and grammar, and then returned to his country in the capacity of supreme chief over all the islands. This convert, who may be considered the first among all our Americans, was named Ivan, with the surname of Glottof. He assisted greatly in spreading Christianity among the Aleuts. It is unknown that Glottof and his companions baptized anybody except the son of the chief, but we know that they erected at that place a large cross, on the site of which a chapel was subsequently erected in honor of St. Nicholas, and in 1826 was replaced by a new one.[1]

For some time after Glottof's visit to the island the Russians in the Unalaska district forgot to baptize any more Aleuts, being occupied solely with their "pacification," as they called it, or rather extermination, and not before 1780, when the so-called pacification ceased, did the Russians once more begin to think of this subject. It was not so much Christian ardor as business considerations that induced the Russians to persuade the Aleuts to the acceptance of baptism, since the converted natives became more manageable, and attached, to a certain extent, to their godfathers, giving their trade exclusively to them. Whatever the reasons were the fact remains the same that the first Russian hunters were the first baptizers of the Aleuts, and subsequently of the Kadiaks, thus paving the way and facilitating the work of the missionaries coming after them.

Shelikhof, the founder of the present company, included in his plans for the development of the Russian colonies the spread of Christianity and the erection of churches, and therefore on his return from Kadiak, in 1787, he petitioned the Government for the appointment of a mission, which he promised to transport to the field of action and maintain at the sole expense of himself and his partners. His petition was answered and a mission was detailed by the holy synod, under the command of the archimandrite, Ioassaf, for preaching the word of God to the tribes annexed to the Russian dominion. A mission was fitted out with everything, and even with more than was necessary, by Shelikhof and his partners, and departed from St. Petersburg in 1793, arriving at Kadiak in the following autumn, where they began their labors at once.[2]

Juvenal first visited Kadiak and baptized all the inhabitants. In the following year, 1795, he went to Nuchek, where he baptized 700 Chugachs, and then proceeded

[1] This cross was in course of time used by some Russians, in the construction of a house, for the posts of a sleeping platform, very unnecessarily, but old men and eyewitnesses assert that as soon as the men began to sleep on the platform an unknown disease broke out among them, and one-half of those living in the house died, while the Aleuts living around them remained in good health.

[2] The personnel of this first mission was as follows: (1) Archimandrite Ioassaf. He returned to Irkutsk in 1797 for promotion to the grade of archierey, and in returning from there to Kadiak he was drowned with all the occupants of the ship *Phœnix*. (2) Archimandrite Iëromonakh Juvenal (who had once been a mining engineer) was killed by the natives in 1796 near Lake Ilyamna. (3) Archimandrite Makar, the Christianizer of the Aleuts, returned to Irkutsk in 1796, and on his return, in the suite of the bishop, was drowned with him. (4) Archimandrite Afanassy filled the office of priest at Kadiak until 1825, and then returned to Irkutsk. (5) Iërodiakon Stefan (also a former officer) was drowned in the suite of the bishop. (6) Archimandrite Iërodiakon Nakar returned to Irkutsk in 1806, and died there eight years later. (7) Monk Ioassaf died at Kadiak in 1823. (8) Monk Herman died at Kadiak in 1837—the last member of the Kadiak mission.

to Kenai and baptized all the people there. In 1796 he crossed over to the Aliaska Peninsula and penetrated to the lake Ilyamna, where he ended his apostolic service with his life, having done more service to the church than all his companions. The cause of his death was his strong opposition to polygamy. It is said that when he was attacked by the savages Juvenal did neither fly nor defend himself, which he might have done successfully, but delivered himself unresistingly into the hands of his murderers, asking only for the safety of his companions, which was granted. The savages relate that after the missionary had been killed he rose up once more, walked toward his murderers, and spoke to them; they fell upon him again, but he repeated his miracle several times. At last the savages became exasperated and cut him into pieces, and then only did the preacher of the word of God become silent. Father Makar proceeded to Unalaska in 1795, and traveled over the whole district from Unga to the Four Mountains, and baptized all Aleuts without exception. The other members of the mission confined their activity to holding services in the churches at their respective locations and teaching children in the schools, but Herman began from the very first a secluded life on a small island (Spruce Island), devoting himself to prayer and agriculture. Subsequently he taught a few girls, orphans, in the Russian language and manual labor, and this small establishment was in very good condition when visited by Baron Wrangell. Among the work of the Kadiak mission must be mentioned that in 1806 Monk Gideon, who visited the island in the ship *Neva*, translated the Lord's prayer into the Kadiak language, and it was sung in the churches after that time. Subsequently, however, it was neglected and finally lost. Mr. Shelikhof, who considered such a man not equal to the work of spreading the word of God in such a vast region, represented to the Government the necessity for additional action, but the drowning of the bishop appointed and the death of Shelikhof himself put an end for the time being to the enterprise.

Baranof, having established Sitka, asked for a priest, and in 1816 the priest Alexei Sokolof arrived there. Subsequently, when the charter of the Russian-American Company was renewed, in 1821, they were ordered to maintain a sufficient number of priests in the colonies. The company petitioned to have them sent out, and the prayer was granted. Veniaminof arrived in Alaska in 1823; Frumenty Mordovskoi entered Kadiak in 1824, and a creole, born at Atkha, Yakof Netzvetof, was assigned to his native island in 1825. This last-named worthy pastor did much toward the spread of the Christian faith; he subsequently transcribed my translations of the Evangel and catechism from the Unalaskan into the Atkhan dialect.

At the present time we have in our American colonies four churches—one at Sitka, in honor of the Archangel Michael, established in 1817; the second at Kadiak, in the name of the elevation of the cross, established in 1795; the third at Unalaska, in honor of the resurrection of Christ, established in 1824; the fourth at Atkha, in the name of St. Nicholas, established in 1825. Nushegak and the Rédoute St. Michael in the north have remained thus far without priests, since the priest of Kadiak, to whom the former properly belongs, finds it impossible to visit it, and the Unalaska priest can do so but rarely. Many converts have been made in that region, and a church or mission will doubtless be established there before long. The following translations have been made in the Aleut tongue to assist in the spread of Christianity: A brief catechism that was printed by permission of the holy synod in 1831, at the instance of the American-Russian Company. The Evangel of Matthew, which the holy synod allowed to be used in manuscript, and a pamphlet entitled "Guide to the Short Road to the Heavenly Kingdom," was also used in manuscript. To the honor of the Aleuts, it must be stated that they eagerly read these books as soon as presented to them in their own tongue.

DESCRIPTION OF FORMER CUSTOMS AND BELIEFS OF THE ATKHA ALEUTS.[3]

The Atkha Aleuts, or the inhabitants of the Andreianof, Rat, and Bering islands, situated between the Unalaska district and Kamchatka, are of the same tribe or nationality as the Unalaska Aleuts. This is proved by their language, customs, character, and outward appearance.

The Atkhans believed that all the inhabitants of the islands known to them originated from one couple that came from heaven to the island named Tanaga, one of their group. The Atkhans, like their brethren of Unalaska, believed in shamanism; that is, though they acknowledged a creator, they also believed in powerful spirits. The Supreme Being they called Kouyudam Agougou and also Achidan Agougou; the first signifies creator of heaven, and the second creator of the lower regions. To intervene between mortals and spirits, and to decide which of them was to be most respected, was the business of the shamans. The demonology of the Atkhans was very compli-

[3] Communicated to Veniaminof by Father Yakof.

cated. They also believed in certain birds, fishes, and other creatures, together with the sun, the heavens, and other inanimate objects, thinking that spirits lived in them. As communication with spirits was carried on only through the medium of shamans, they imagined that these spirits looked as the shamans appeared during their ceremonies and dances, with masks or disfigured countenances. Such masks and faces were still seen by the priest above mentioned. He says that they are generally well executed, representing the heads of animals in an exaggerated form. Some of the Atkhans ascertained that in certain inaccessible localities there were colossal beings of human shape, called Taiagouligouk, to whom sacrifices or offerings were brought, consisting of paints, skins, pebbles, and fine sinew thread, but there was no open idol worship, and even this approach to it was considered dangerous among the people. They believed that idols might occasionally be of assistance to those who had made them; but though they complied at a certain time with the wishes and demands of their worshipers, they finally proved their destruction, and sometimes a whole family or tribe was annihilated for daring to visit the locality where the idol was kept, and therefore it was strictly forbidden to make such figures. But the shamans continued to foster the worship, and instances of the same have been discovered often since Christianity was introduced in the Atkhan district. Especially was this the case among the inhabitants of the island of Attoo, where the last secret orgies were held. Idol worship was finally broken up by the priest during his visit in 1827. The Atkhans relate that on one of their islands, named Sagougamak, on a bay named Ousamkoukh, about halfway up the mountain, there had been erected an idol by some shamans which destroyed at sight all who passed by. They all had seen it and knew that it destroyed their brethren, but they did not know where and how they were destroyed until finally one of them sacrificed himself for the purpose of ascertaining the place where the Aleuts disappeared. Having resolved upon his undertaking, he went to the dreaded vicinity, taking with him his wife, whom he hid in the interior of his bidarka. Arriving on the spot, he sat down his wife in a place of concealment and told her to watch him, while he himself went on farther and camped. His wife saw that something emerged from the idol, proceeded toward her husband, killed him, and carried him off to a cave. She returned home and related the occurrence. The Aleuts at once collected in large numbers, proceeded to the idol, and killed the spirit operating the same, and after that the bay was safe. They also said that about the year 1814 an idol was found on the island of Kanaga which gave signs of life; and in 1827 a similar discovery was made on Adakh Island by two Aleuts, who saw the spirit come out of the cave. The first idol was destroyed by being broken up, but the second was killed with a gun and then shattered and burned.

The Atkhans also believed that the souls of dead people did not die, but separated from the body and lived, scattering everywhere, without any permanent place of abode. The Atkha shamans, as a rule, were men, but a few women have been known in the profession. According to the belief of the people, the shamans had intercourse with spirits and the power to summon them in cases of necessity; they foretold the future; they threatened those who showed them disrespect with various punishments; cured the sick, and assisted the hunters in their pursuits, etc.; consequently the more prominent or skillful among them were held in considerable respect. For curing diseases or bringing good luck to hunters the shamans generally employed the roots of plants, and sometimes of dwarf willow and birch, pieces of which were considered as valuable gifts. If the prophecies or assistance of shamans proved successful, they demanded from their clients offerings to the spirit most respected by them, while they themselves were satisfied with what their clients were willing to give. One of the common occupations of the shamans was the manufacture of masks and faces, and sometimes of charms and nostrums. They also superintended games and dances, composed songs, etc. For all such doing they had certain localities where no unclean person or woman was allowed to enter. In order to keep themselves and their belongings beyond the influence of any unclean being, the shamans frequently washed themselves, their clothing, and their implements in the water of running streams.

The Atkhans, like their brethren of Unalaska district, strictly prohibited the betrayal of secrets to other tribes as leading to quarrels, murder, and war. They also prohibited laziness, theft, willful abuse; to avenge a wrong even by the most violent means was not only considered praiseworthy, but an unavoidable duty; respect for parents and for the aged and gratitude to benefactors were considered virtues. To kill a man for cause was considered just and allowable. Such causes were a violation of the marriage-bed, a refusal to fight for the community, treason, or secret intercourse with other tribes. The punishment for these crimes was sometimes carried so far as to include the wife of the offender; but children, especially small children, were always spared. They had no general punishment for crimes; each one was supposed to deal with his own enemies. Theft was not suffered among them at all; a house in which theft or robbery had been committed was at once leveled to the ground and rebuilt in another place with certain ceremonies; then a

shaman with a few other men entered the new building, burning certain herbs and going through various ceremonies, in order to find out the guilty one. It was believed that the ashes of the burned herbs would fly into the face of the thief. Once discovered, the guilty man was stripped and beaten. A very remarkable custom among the Atkhans is the "purification," which they call *aliag*. Sodomy and too early cohabitation with a betrothed or intended wife are called among them grave sins. The manner of purification was this: The offender desirous of unburdening himself selected a time when the sun was clear and unobscured; he picked up certain weeds and carried them about his person; then deposited them and threw his sin upon them, calling the sun as a witness, and, when he had eased his heart of all that had weighed upon it, he threw the grass or weeds into the fire, and after that considered himself cleansed of his sin.

The Atkhans, like other savages, did not know the value of their lives, and, therefore, in disasters they were easily overcome by their feelings and deprived themselves of their lives. Grief over the death of relatives—a son, cousin, husband, or wife, etc.—often led to suicide; but there were no examples of children depriving themselves of their lives from grief over the death of their parents, no matter how dearly they had loved them. This was probably considered as a law. It occurred also that men committed suicide from disappointment at the failure of an undertaking, fearing that they would become the laughing-stock of the village. Sometimes they preferred death to capture among their enemies, for all prisoners of war were slaves for the remainder of their lives.

The Atkhans allowed intermarriage between all relatives, with the exception of a brother to a sister, father with his daughter, and a son with his mother; and in case of the death of one brother the other was obliged to marry the widow. Marriage was contracted at 10 years of age, the time when a boy was considered able to manage a bidarka and throw a spear, and consequently was counted among the hunters, while the girl was able to sew. Sometimes the parents betrothed their children to each other. As soon as such an engagement had been resolved upon the parents presented the children with household utensils, clothing, hunting gear, etc., but the marriage was only considered as binding when the young couple had brought forth children. At that time it was the custom to present them with slaves; and the refusal of an offer was considered a great insult, for which the most severe measure of vengeance might be instituted, even to death. Men were allowed to have two or more wives, but only very few had more than two. They were very jealous of their wives, and adulterers were subjects of cruel vengeance, and this crime often led to intertribal wars. The love of parents for their children and of children for their parents was as exemplary as among the Unalaskans. The parents managed their children strictly, teaching them everything necessary for their comfort without permitting them to follow their own inclination, even setting apart certain hours when they might leave them temporarily. Brothers and sisters were not allowed to play with each other. For disobedience and trifling offenses the punishment was only a reprimand, but for a graver infraction of rules the children were made to fast a day or more. The parents were always willing to intrust the education of their children to relatives, or even strange people. It was also the custom to give away children for adoption, sometimes without consideration, but generally expecting some return. These adopted children were accorded all the rights of real children of their new parents.

The mode of burial differed in accordance with the social condition of the deceased. The nobles, the wealthy, or prominent, distinguished hunters were buried with special ceremonies. A corpse of this class was clothed in its best garments and deposited in a small structure of earth, ornamented as much as possible with mats and flowers; the deceased was seated with his knees drawn up to the chin; then the structure was covered over and closed. If the deceased had been a hunter all his hunting utensils were buried with him. The poor and common people were simply thrown into holes, but also in a sitting posture. Men who died at sea were generally eviscerated for the purpose of postponing decomposition. The entrails were burned separately. Relatives of the deceased individual killed slaves in his honor, or as proof of their love for him or their violent grief—customs observed by other American tribes. Near relatives of the dead continued a general lamentation for several days; during this time they fasted; they did not partake of meat or oily food such as fish heads, and they kept themselves clean; and even husband and wife did not cohabit during the time of mourning. Those who were very much attached to the deceased, if they did not commit suicide during the first paroxysm of grief, often fasted almost to starvation, and frequently visited the place of burial to mourn and lament, giving away to the people large quantities of valuables in memory of the dead. When children died the parents did not weep, with the exception of cases where children died before having any teeth; in that case the father fasted ten days and the mother twenty. The wife at the death of her husband, and the husband at the death of his wife, kept a fast and lament for sixty

days, beginning from the eleventh day after the death; but if the husband died or perished at sea the days of mourning and fasting were reduced by half. At the conclusion of the mourning period the widows or widowers might contract a new marriage.

The government of the Atkhans was patriarchal and liberal. They had no laws or rules; customs and traditions were their only guide. They had hereditary tribal commanders, like other American nations, but their power was limited and conditional; they were only obeyed by those who chose to listen. Their power consisted principally in the office of selecting men to perform certain labor for the common welfare; to divide whales cast up by the sea; to collect the forces in cases of emergency, and act as leaders during battles with the enemy. But on such occasions it was necessary that they should conduct themselves bravely and be ahead of everybody; if one acted otherwise some "brave" was at once selected to replace him, and such individual was at once invested with all the prerogatives of a chief. Chiefs who displayed extraordinary cowardice were deprived not only of rank, but of their property.

Special days or periods of repose they did not know, but whenever there was any occasion for feasting, such as the arrival of strangers, the return of parties from long voyages, victories over an enemy, or uncommon success in hunting, a season of rejoicing was at once instituted. Their celebrations consisted generally of scenic representations, with songs to the accompaniment of drums; masks were also used at such times, and other ornaments according to the subject represented by the actors. Frequently shamanism entered into such solemnities; shamans were always present on such occasions, and were consulted in the shaping of masks or disguises. These festivities began and frequently ended with feastings. The fare consisted only of local products, all marine animals except the "killer" whale, all birds with the exception of the hawk, eagle, and gull. All fishes and all known berries and roots were consumed as food, but the most luscious morsel was a mixture of sarana roots and berries with blubber.

The Atkhans had also special games for evenings, during which personal encounters or trials of endurance took place. The contests sometimes were of songs, sometimes of dances, and, rarely, a rude kind of wrestling. Formal challenges were sent and accepted on such occasions, and a failure to be ready at the appointed time was considered a disgrace. The whole proceedings were of a friendly nature, and were generally accompanied with feasting, always with songs and dances. In course of time abuses entered into this custom, and contestants and enemies made use of such opportunities to inflict injury upon each other. Open breaches of the peace and murder were of exceedingly rare occurrence on such occasions.

The Atkhans, as well as the Unalaskans, maintain that there was a time when they all lived at peace with each other and with their neighbors, but subsequently quarrels broke out, and finally it became customary for inhabitants of different villages to attack each other and destroy houses and property. Only the permanent residence of Russians among them put an end to internal strife and murder, and the adoption of the Christian religion only changed their character and united as brethren those who had formerly been engaged in strife. The bloodiest wars previous to the arrival of the Russians were carried on by the Atkhans with their neighbors of Unalaska; the latter, being the more numerous, were generally victors.

They say that the first cause of war between them was the following occurrence: One of the Unalaskans had married a native of Atkha and had a son by her, who unfortunately had only one hand at birth. At one time the relatives and brothers of the wife came to the village and stopped. The husband at this time was away at some distance. The uncles and relatives noticed their one-hand nephew and began to make fun of him. They tied to his body an inflated bladder, or drum, and told him to dance. To the mother such sport, though perhaps innocent in itself, appeared an insult, but she did not exhibit her anger. The guests departed in peace, without suspicion of coming evil. When the husband returned she told him everything—that her relatives had made sport of their unfortunate son. The husband became very angry, and, collecting a few of his relatives, he set out at once to seek revenge. He carried out his intention very easily, as his former guests had no inkling of being pursued. This first errand of vengeance gave rise to continued hostilities between the Atkhans and Unalaskans and to a repetition of the first attack. The Unalaskans, of course, considered themselves as insulted and injured, and in their turn attacked the Atkhans. In course of time it became impossible for members of the two tribes to meet without a bloody conflict; but the Atkhans suffered much more, because they were weaker, and not daring to attack the villages of their enemies, they were obliged to watch their opportunities when the Unalaskans were on journeys at distant hunting grounds. These conflicts generally took place on Siguam, Amlia, and Amukhta islands. The Unalaskans, on the other hand, raided upon the Atkhans every year in numbers of from 50 to 100 bidarkas. This was carried on to such an extent that the Atkhans were obliged to shut themselves up during the summer in

secluded and inaccessible fortified places, but even then they were often besieged and compelled to surrender. The islands of Siguam and Amlia were generally the theater of war.

Though unable to return the attacks of the Unalaskans, the Atkhans occasionally made war upon the Rat and Near islands as far as Attoo, and only with partial success. They used the same weapons as the Unalaskans—lances and knives. The prisoners, especially the males, were treated by the Atkhans with great cruelty, and those who were made slaves were fortunate, indeed; the others were burned alive in fire, roasted on heated rocks, and beaten with straps.

The Atkhans, as well as the Unalaskans and other tribes, believed, until the arrival of Europeans, that they were the only people in the world, and therefore the first appearance of the Russians created great consternation. All such acts of the Russians as were incomprehensible to them were ascribed to supernatural qualities, and in the early times the Russians were classed with spirits or with devils. This character was maintained by the Russians subsequently by their cruelties and violent treatment of the Aleuts. Any article of Russian manufacture found upon the beach was considered as unclean, and was at once thrown into the sea or burned. At first the use of iron or copper was strictly prohibited by the shamans; but where there is a rule there is always violation of the rule. The Aleuts became more bold and convinced themselves of the superiority of metals for spear and arrow heads, knives, etc., and subsequently they became better acquainted with the Russians and their customs, and iron and copper became the most valuable objects in their eyes, though the belief continued that they were manufactured with the assistance of the devil.

DIVISION OF TIME.

The Aleuts had twelve months in their year, the eleventh of which was longer than the others, to complete the full year. Their seasons were:

Kanakh, winter; Kanikínga (after winter), spring.

Sakoódakh, summer; sakoodikinga (after summer), autumn.

The milky way was called inim sighidá, from sighidak, linia alba (from the navel downward).

Their months were as follows:

1. March—Kadoogikh (first month), or Khisagoonakh (when straps are eaten—starvation).
2. April—Aglioo'igikh khisagoonakh (end of eating straps), or Sadágan kagikh (time for leaving houses).
3. May—Ichikh khookh, or Chigūm tugida (month of flowers).
4. June—Chagalílim tugida, or Chagaligim tugida (month of breeding and hatching).
5. July—Sadignam tugida (when animals grow fat).
6. August—Oognam (or Ùkhnam) tugida (warm month).
7. September—Chugūlim tugida (when furs are good).
8. October—Kimadgim tugida (hunting month, when seals come from the north).
9. November—Kimadgim kangin (after hunting month).
10. December—Agalgūgakh, or Agalgālukh (when seals are hunted in disguise).
11. January—Tugidigámakh (long month).
12. February—Anulgílíakh (cormorant month).

III.—THE ATHABASKANS.

The Athabaskans, or Tinneh, include a large number of tribes generally classed as "North American Indians," extending from the mouth of the Mackenzie River in the north to the borders of Mexico in the south. The northernmost tribes of this stock extend in a westerly direction nearly to the coast of Bering Sea and the Yukon Delta, touching the seacoast at one point only in the northern part of Cooks Inlet. At every other point they are separated from the ocean by a belt of

Eskimo population. The reasons for adopting the term Athabaskan preference to that of Tinneh have already been given.

Closely allied as these tribes are to our own well-known Indians the interior, they will probably share in the fate of the latter, c appearing rapidly before the first advances of civilization, until scarc enough may be left to accommodate themselves to the new state affairs. While the Eskimo tribes of Alaska, especially those living the southward of Bering Strait, have the faculty of assimilating w races of a higher type, the Athabaskans of the far north have thus displayed no traits which would warrant us to hope for their spe civilization. The territory which furnishes the Athabaskan tri numbering a few hundreds, or perhaps thousands, with a scanty liv equals in superficial area many of our States or Territories. With exception of the Tinnats or Kenai people, on Cooks Inlet, these tri have not been in direct contact with Caucasians until quite lately, with the one exception before mentioned they have not taken kindl the invaders of their vast domain. Nearly all the Athabaskan tri of Alaska add to their tribal name proper the word khotana, kokhta or tena. A few tribes on the upper Yukon have the term kutchin, wit the same meaning. It is very probable, however, that this kutchi may be traced to the same root as the above-mentioned kokhtana, an perhaps to the khuilchan (kolchan or golchan of the Russians). Th latter expression means "far-away people" with the natives of Coppe River, and also with the Tinnats or Kenai people.

In enumerating the Athabaskan tribes of Alaska we begin with

THE NATSIT-KUTCHIN.

The Natsit-kutchin (Natsikkutchin of Dall and Natchekutchin o Ross) are known to the traders as gens de large. The word natsi signifies strong. They are nomadic, not numerous, and occupy th banks of the Porcupine River, above its junction with the Yukon, an the country between the latter river and the Arctic divide. They ar but little known, and carry on a traffic with the Kangmaligmute of th Arctic coasts. Their dwellings are rudely constructed log shelter and during the summer they live in tents.

THE HAN-KUTCHIN.

The Han-kutchin, living on the upper Yukon River, between th British boundary and Fort Yukon, embrace several of the subdivision made by Mr. Dall, such as the Tutchonekutchin (Kolchane) and Nehan nees. To traders they are known as gens des faux. They also lead nomadic life, and trade with the natives of Copper River and those o the upper Tennanah River.

THE YUKONIKHOTANA.

This tribe, comprising the Yunakhotana and the Kutchakutchin c Dall, inhabits the banks of the Yukon River from Fort Yukon westwar to Nulato. The people are less nomadic in their habits than their easter neighbors, but are by no means numerous. Their dwellings are built c logs and roofed with bark, and their summer garments are of tanne moose and reindeer skins, while those for winter use are made of reindee wolf, and fox skins. They trade at various points along the Yukon, b prefer to assemble at Noyakakat and Nuklukaiet. Their tribal nam

signifies "men of the Yukon." The existence of totems among them has not been definitely ascertained, though we have many indications of their division into clans. In distinction from their neighbors of the west and north, they do not use their dogs as draft animals, but only for hunting. In winter and summer alike they carry such loads as they wish to transport upon their shoulders. They are, as a rule, tall and of spare habit. Their women are worn-out and faded at an early age, having, in true Indian style, to bear most of the household burdens. They are polygamists, in spite of the fact that the males outnumber the females considerably in the majority of the settlements. They have no marriage ceremony, but the custom of purchasing wives, found among so many of the Athabaskans, does not exist among them. They are not copper-colored, being rather of an ashy hue, and they are less hairy than their Eskimo neighbors.

THE TENNANKUTCHIN.

The Tennankutchin (Mountain men), or Tennan-tnu-kokhtana (Mountain River men), as they are called by the Tinnats, occupy the mountainous basin of the Tennanah River. But few white men have penetrated into their domain, as they have always borne the character of a treacherous and warlike tribe. They number, perhaps, 700 or 800, living chiefly in villages near the headwaters of the river, which they descend during the summer in birch-bark canoes to trade on the neutral ground of Nuklukaiet, at the junction of the Tennanah with the Yukon River. Their common dress consists of moose-skin shirts and pantaloons, for both sexes, the difference consisting only in the shape of the skirt of the upper garment, which is rounded with the females and pointed with the males. Both sexes are fond of bead and porcupine-quill embroidery. They paint their faces, and on festive occasions powder their unkempt locks with eagle-down, after the fashion of the Kaniagmute, in the far southeast. In summer the men wear no head covering but a narrow band of skin for the insertion of feathers. The accompanying plate represents two individuals of this tribe, who were the first to visit the seacoast, in the year 1880. They have been known to trade with the Kenai people in ancient times, and are reported to possess a system of totems.

THE YUNNAKAKHOTANA.

The Yunnakakhotana, first named by Zagoskin, inhabit the Koyukuk River, the northern tributary of the Yukon. Their name signifies "far-away people," and was probably given to them by their southern neighbors, but Mr. Dall calls them Koyukokhotana. Zagoskin is the only white man who has ever visited them in their homes. He made a winter journey along the river and across the divide to the headwaters of Selawik River, which empties into Kotzebue Sound. He describes them as living in small communities of one or two log houses, widely scattered. The Yunnakakhotana trade alternately at Nulato, on the Yukon, and with the Eskimo of Kotzebue Sound. Mr. E. W. Nelson reports that he saw natives belonging to this tribe on the coast of Kotzebue Sound, who had mixed with their Eskimo neighbors to such an extent as to have adopted their language while still retaining their distinctly Athabaskan physical features.

Misled, probably, by his imperfect knowledge of the Russian language, Mr. Dall has mentioned Zagoskin (and upon his authority Wrangell and Baer) as classing these people with the Innuit or Eskimo.

In this he is mistaken, as Zagoskin drew a very distinct line between his Tinnai and the Kngyulit or Eskimo everywhere, locating the boundaries between the tribes with remarkable correctness.

THE KAINHKHOTANA.

The Kainhkhotana, comprising the people of both banks of the Yukon from Nulato down to Paimute (the eastern boundary of the Eskimo tribes on the Yukon), as well as the tribes living upon the banks of the Chageluk, Innoko, and the Thlegon rivers, formerly classed as Ingalit or Inkalik, are the westernmost of the Alaskan Athabaskans, almost impinging upon the seacoast at the headwaters of the Anvik River. The tribal name means "lowlanders." Like their eastern neighbors, the Kainhkhotana live chiefly by hunting, and engage in fishing only to eke out scanty supplies. They live in permanent villages and make use of dogs as draft animals, having adopted in addition many customs of their Eskimo neighbors on the west. In traveling on the river and on the lakes they make use of both the birch-bark canoe and the kaiak. The latter, however, is not manufactured by themselves, but purchased from the Eskimo, who in their turn, as before mentioned, have adopted the birch-bark canoe for certain purposes. The Kainhkhotana have also adopted from the Eskimo the frequent celebration of festivals and the rites of shamanism. Their dwellings are large and partly underground, with a superstructure of logs and sods. The kashga or council house of the Eskimo is absent here, and festivals are held in the larger dwellings. No traces of the totemic system have been found. During one of their festivals, connected in some way with hunting reindeer, which the writer witnessed on the Chageluk River, the following representation took place: Two men, who had been donning their costumes behind a screen of deer skins, suddenly appeared in the center of the house, the sides of which were lined with spectators. One man was attired in a fantastic hunting costume, richly ornamented with beads, fringes, and tassels, and wearing a band around the head studded with eagles' feathers, and with bow and arrows in his hands. The stuffed skins of several animals and birds were drawn forth from some corner in rapid succession by means of strings, and as each animal appeared the hunter made an attempt to kill it. Every attempt, however, was foiled by the other man, who was dressed up in imitation of a raven, with the appropriate mask and with wings fastened to his arms. With these wings he would spoil the hunter's aim, and then hop about, imitating admirably the awkward jumping of the crow, while he kept chattering away in derision of the awkward hunter. This was kept up for some time, until a shaman or sorcerer appeared upon the scene, dressed up in a long hunting shirt nearly covered with strings of bears' claws, eagles' beaks, beads, etc., and with rattles in both hands. The shaman pressed upon the hunter the acceptance of a charm or amulet, for which he received in payment nearly everything the hunter had about him. Then the animals began to appear again, the hunter slaying them one after another without any further interference from the raven. It was evidently unnecessary to look for any deep meaning in this performance, as it was only the shaman's advertisement of his charms and services, pure and simple. In such festivals as are celebrated in memory of the dead the performances are more varied and of greater interest.

The Kainhkhotana, like most of their Athabaskan neighbors, deposit the bodies of their dead in boxes raised on posts somewhat above the ground. Flags and streamers of white cotton are frequently attached

hese structures. The burial places are generally located upon some ninent bluff overhanging the river, where the graves can be seen ı a distance.

THE KHUILCHAN.

ıe Khuilchan, or Kolchane of the Russians, occupy the vast interior ntainous region bordering upon the upper Kuskokvim, the divide 'een the latter river and the Tennanah in the north, the main Alaskan e in the east and south, and the country of the Nushegagmute in vest. They are nomads, roaming about at will from river to river, from one mountain chain to another, selling their skins at the trad- osts nearest their hunting grounds. This last custom has given to an overestimation of their number, as the same tribes have been unted for as trading at three or four different stations. Their whole ber at present probably does not reach 200. The many traditions ıeir treacherous and warlike character handed down to us by the dians may safely be looked upon as fabulous. Living as they do, could never have been a numerous people or the cause of danger ıeir neighbors. It is said that they have some permanent villages ıe headwaters of the Kuskokvim, but no white man has ever beheld ı. Such of the women as have been seen at the various trading- ons were of repulsive appearance, and gave evidence of a life of ship and abuse. The Khuilchan use birch-bark canoes, and do not e use of the dogs as draft animals.

THE TINNATS- (OR KINNATS-) KHOTANA.

ıe Tinnats-khotana (Kenaitze of the Russians), named Tehaninkut- by Dall, are the only tribe of Athabaskans occupying any portion ıe seacoast in Alaska. They came into contact with the Russians n early date, but were subjugated only after much fighting. As as 1789 permanent trading stations were established among them ıe coast of Cooks Inlet by the Russians, and from that time they been nominally Christians. Their regular missionary station is located on the mouth of the Kaknu River. The settlements of the ıats-khotana extend from Kuchekmak Gulf on the Kenai Peninsula nd the inlet northward and westward, including the valleys of the k and Sushetno rivers, and reaching to the great lake of Ilyamna, down to the vicinity of Cape Douglas, where the Kaniagmute ter- y begins. The Tinnats-khotana are taller than their Eskimo neigh- ; their skin is a shade or two darker, with the exception of those g in the neighborhood of former Russian settlements, where they intermingled with the invaders. Their women are generally much prepossessing in personal appearance than those of the other ıbaskan tribes of Alaska. In the coast settlements their mode of ıas been much changed. They have adopted to a great extent the oms of the semicivilized Kaniagmute and creoles, but in the ior, especially in the Sushetno and Kinik valleys, we find them dressed in deer-skin shirt and trousers, men and women alike; a tice clearly indicating their kinship to the northern Athabaskans. y of their garments are tastefully embellished with porcupine s, beads, and grass plaiting. The ears and noses of the men are ed for the insertion of pendants of dentalium or hyqua shell, this g almost the only section of the Territory where the trader still a steady demand for these shells. In the interior these people the birch-bark canoe exclusively for coast voyages and for the pur-

pose of hunting the beluga; purchasing the bidarkas they us
their Eskimo neighbors. They build their permanent dwellings c
These logs are so fashioned that the under side, hollowed out, fit
tight, almost air-tight, upon the rounded surface of the timbe
below. Some of their houses are from 15 to 20 feet square, an
regular rafters, giving a pitch to the roof sufficient to shed ra
melting snow. The covering of the roof is the bark of spruce
The fireplace is in the center, with a smoke hole directly above it
entrance to the house consists of a low, square aperture scarcel
enough to admit an adult person. The floor consists of the
earth, trodden hard, and along the sides of the inclosure are rud
forms, erected a foot or two from the ground, covered with gras
and skins, and serving as sleeping and lounging places in the e
In the houses of the well-to-do hunters we find wings or box lik
tions to the main building, tightly framed and put together, o
into the main room. These little additions are furnished wi
luxury of a rough plank floor, and in many instances with a sma
dow covered with fish gut. They are used in winter as sleeping
ments, and as reception rooms during visits of ceremony, and
bathrooms, being heated during the winter with hot stones car
from the fire outside, thus enabling the natives to dispense with c
during the night, which they consider a great luxury. Where
Tinnats-khotana are under the influence of the Russian missic
bury their dead under ground, but in more remote settlements
the bodies deposited in boxes set upon posts, as before noticed in
ing of other Athabaskan tribes. The bodies of chiefs and pro
persons are frequently placed in a structure resembling a small
with door and window, and gifts are deposited at graves and
places. At the death of a chief it is the custom to carry all his
ings into the hut that shelters his remains. In the vicinity of T
I saw such a burial house nearly filled with articles most valu
the eyes of the natives, among them several Russian samovars,
from $50 to $60 apiece, breech-loading arms, rifles, large num
blankets and deerskins, richly ornamented garments, etc. The de
who had been thus honored was a Christian, and not long after m
the Russian missionary proceeded to the burial house and car
all articles of value and sold them at auction for the benefit
church. No opposition was made at the time to this summary p
ing, but it is very probable that the resentment naturally
thereby in the hearts of the natives will rankle there for years, unt
opportunity presents itself for vengeance. The men of this tr
of a taciturn disposition, but they are indefatigable hunters, and
most of their time in the chase of fur-bearing animals and game, n
long journeys into the interior through the mountain defiles an
passes, nearly always on foot, using their birch-bark canoes chi
crossing rivers and lakes. They build along their routes of trav
and there temporary shelters or sheds open in front, with slopin
thatched with grass. Each traveling individual or party, on l
such a place, deposits in a certain nook a small bundle of dry
birch-bark, rosin, or twigs, to enable the next comer to kindle
without difficulty. This hospitable and thoughtful custom is
omitted.

The Tinnats-khotana also have their festivals and dances on
occasions, during which presents are given away to those who
The giver of the feast alone appears masked and dressed up in f
costume. The modus operandi of one of these festivals, celebra

the occasion of a beluga hunt at the village of Chkituk, was as follows:

The invited guests who were to participate in the feast arrived in canoes late in the afternoon, and were received on the beach by the chief of Chkituk, accompanied by nearly all his people chanting a song in slow measure. The guests took up the song, and both parties walked up to the village, the hosts carrying all the baggage and belongings of their visitors. The party proceeded at once to the house of the chief, where they were entertained hospitably during the remainder of the afternoon. Etiquette did not permit a single question to be addressed to the newcomers until they had satisfied their appetites. The greatest delicacies, berries preserved in rancid oil, beluga blubber, dried moose nose, and fish spawn were pressed upon them without a word and partaken of in silence. At last their hunger was appeased and conversation began, which was kept up until darkness had set in. Then the chief retired into a corner of the apartment, and with the aid of his two wives attired himself in his best costume, consisting of an immense hat trimmed with bears' claws and beads, and a loose robe of white cotton richly embroidered with beads. In his hands he had rattles, inflated bladders filled with pebbles. He advanced to the center of the room and began to dance, two of his sons chanting and beating time with sticks. The measure increased in rapidity as the dance proceeded, involving a corresponding change in the movements of the chief, who wound up his performance with the most violent contortions. When he was thoroughly exhausted he ceased dancing and threw upon the floor a number of articles he wished to give away. The spectators, excited by the song, also produced gifts and threw them upon the others. The whole was then distributed among those present in accordance with the directions of the oldest woman present, the chief lifting up each article and the woman calling the name of the person who should have it. After this the chief changed his costume four times, performing as many dances, and after each there was a distribution of presents. This ceremonial was kept up for three successive afternoons, until the hunters departed on their journey, chanting a canoe song and keeping time with their paddles.

The Tinnats-khotana, though nominally Christians, still observe many of their old customs, one of which is the driving away of evil spirits from the couch of a dying person. I witnessed a scene of this kind in a village situated within a few miles of the missionary establishment. A woman was lying upon a wretched couch in her last moments, while her husband stood in the entrance or doorway of the house, loading and firing his gun and shouting between the discharges at the top of his voice, accompanied by a chorus of yells and groans from the other members of the household, his neighbors joining. The action appeared to be cruel and savage, but the intention was good, being to frighten away the evil spirits from the dying woman.

The Tinnats-khotana have many traditions of gigantic races, living to the northward, who in ancient times invaded their territory, killing many people. One old man assured me that during the lifetime of his grandfather one of these giants came down from the mountains, and as he strode through the villages he would pick up an unfortunate individual in each hand, swing them by their feet, and knock their heads together, after which summary proceedings he would deposit them in the breast of his parka. It is of course out of the question that these savages should ever have heard how Polyphemus treated the companions of Ulysses. The same old man, in speaking of the tribes adjoining the Tinnats-khotana in the north, said that after crossing the moun-

tains the traveler would first come to the Khuilchan, who were cannibals, easily distinguished by a blue ring around the mouth caused by their horrible practice. Beyond this tribe lived the giants heretofore mentioned, and still beyond them a very small race of people, almost black, but exceedingly skillful in the use of bow and arrow. Beyond this dwarf tribe again there was only water and big fish, as big as mountains. One might also imagine from this fantastic description that the Tinnats-khotana knew of the undersized Eskimo of the Arctic coast and the whales in the Arctic Ocean. Their superstitions with regard to the various smoking and rumbling volcanoes in their country are numerous. They do not like to approach such localities, and until the Russians settled among them the immediate vicinity of volcanoes served as a refuge for the reindeer, moose, and other game, which were never molested there. They tell of an eruption of the Ilyamna volcano, during which lava and rock in huge masses were thrown across the inlet, covering up whole villages with débris. It is of course impossible to locate with accuracy the time of this fearful eruption, but all along the eastern coast of Cooks Inlet are yet found blocks of lava and conglomerate that invest the tradition with some probability. The natives also say that a pestilence followed this eruption, nearly destroying the people. This also we may believe when we glance at the large number of village sites almost hidden from view under a dense covering of sphagnous growth.

The following are the names given by the Tinnats to other tribes:
Their own name: Tinnatz or Kinnatzkokhtana.
Kaniagmute: Ultz-chna (slaves).
Chugachimute: Tatliakhtana.
Copper River: Otnokhotana.
Thlinket: Totkoliushok. [?]
Aleut: Takhayuna.
Aliaska Peninsula: Nieskakh-itina.
Prairie or tundra people: Ghuil-chan.
Ilyamna people: Ktzialtana.
People of the seacoast with long spears: Tutna.
Dog-drivers (in the north): Tyndysiukhtana.
Russian: Kaziakhtana (Cossack).

THE AH-TENA OR AHTNA-KHOTANA.

The Ah-tena (of Dall), a name signifying "big men," or Otno-khotana, as they are named by the Tinnats, occupy the whole basin of the Copper, or Atnah, River and its tributaries. Their permanent villages are located on the headwaters of the river, a hundred miles or more from the sea. They do not number over 300 all told. Their position is that of middlemen between the Eskimo tribes of the seacoast and the Athabaskans of the far interior, their trading operations extending as far as the headwaters of the Yukon and Tennanah rivers. The men are tall, straight, and very active, with features resembling closely those of the typical North American Indian; aquiline noses are the rule among the Atnah people. The men do not possess any beard, or perhaps remove all hair from the face after the custom of other well-known tribes. The females of this tribe have not yet come under the observation of any white men who lived to describe them; two or three Russians who ventured to penetrate into the Copper River country were killed by the savages, and the only white man (a miner) who has made an attempt since the acquisition of Alaska by the United States, though

PLATE VIII.

THLINKET AND MAN FROM COPPER RIVER.

suffered to reside in the lower Copper River region for nearly two years, was not permitted to visit the permanent villages or to ascertain the mineral resources of that region. The name of the river from which this tribe has taken its name is properly Ahtnu, or "Big River," tnu being the word for river in their language as well as in that of the Tinnats. The party of Copper River natives who made their annual visit to the Nuchek trading post in the year 1881 gave to me, as their tribal name, Ahtnu-khotana, or "Big River people." For the purpose of visiting the seacoast these people purchase large skin-covered boats of the Chugachimute or of the traders. The return journey up the river is exceedingly difficult, as at two different points glaciers have crossed the river, making long portages over the ice necessary. The men claim that they must spend from three to four weeks on their return voyage. This assertion is probably true, as they abstain from purchasing any article of weight or bulk for the purpose of their trade, confining themselves entirely to beads, a few light packages of cotton prints, and tobacco. The beads are purchased by them only for the purpose of selling them again, as they do not themselves make use of any kind of bead ornaments. Their deerskin garments are trimmed with porcupine-quill embroidery and fringes alone. They wear their hair long, either hanging loose or tied in a single scalp lock at the top of the head. The accompanying plate represents one of these Atnah warriors, together with an individual from their nearest neighbors in the east, the Chilkhat Thlinket. For the reasons above mentioned, nothing is known of their domestic life or their beliefs and superstitions. By the Eskimo of Prince William Sound the Copper River people are called Yullit, according to the same authorities, but it is probable that this term signifies "one people."

IV.—The Thlinket.

The Thlinket, numbering perhaps somewhat over 7,000 people, and inhabiting the coast and islands from the intersection of the one hundred and forty-first meridian to the southern boundary of Alaska, are perhaps the most interesting among the native tribes of the country, from an ethnological point of view. The curious totemic system is more fully developed here than it has been found with any other tribe. The ties of the totem or clanship are considered far stronger than those of blood relationship. The principal clans are those of the Raven, the Bear, the Wolf, and the Whale. Men may not marry in their own clan, and children belong to the clan of their mother. The Thlinket are strictly confined to the seacoast by the natural barrier of stupendous mountains that rise everywhere within a short distance from the shore along the whole length of their territory; hence they are emphatically a maritime people, skillful in the construction and management of their huge wooden canoes, fashioned out of a single log. Nearly all their subsistence is drawn from the sea and from the rivers, with the addition of deer and mountain goat from the mountains. Their country is thickly wooded, and as a consequence their dwellings are large, being constructed of huge planks and logs, some of the latter of such dimensions as to make us wonder how these savages could handle them without mechanical appliances. In all the villages where the Thlinket live in their primitive manner totem posts, from 50 to 100 feet in height, rise up in front of nearly every dwelling, elaborately carved with the totem in all imaginable variations, and indicating in some obscure way the pedigree of the owner. The Thlinket excel in all manner of carving in

wood, bone, or stone. They shape pipes, rattles, and masks, with all fantastical forms, from the hardest material. The women are equally skillful in plaiting baskets from spruce roots split and soaked in water. The fibers are dyed in different colors and worked into tasteful patterns. In former times they also made a practice of weaving the long hair of the mountain goat into cloaks and blankets in the most gorgeous colors and patterns, but since the introduction of woolen blankets and manufactured clothing this art has been neglected until now it is almost lost, but a few of these garments now existing as heirlooms in the more prominent families.

The Thlinket, like their near relatives, the natives of British Columbia, have always owned slaves, and the custom has not been abolished among them since their transfer to the United States. The slaves were always, in the first place, prisoners taken in war and sold from one clan or tribe to another, but the descendants of these slaves also remained in the condition of their parents—liable to be given away, traded off, or even killed, at the pleasure of their masters. The former custom of killing slaves on the death of a chief in order to furnish him with servants in the other world has become obsolete, or exists only nominally, as for long years previous to the sale of the territory the Thlinket of Alaska were in the habit of accepting presents from the Russian authorities in consideration of releasing the intended victims of this practice. They resorted to the same extortion during the first year of American occupation, when the military commander at Sitka, with 200 or 300 soldiers at his back, was weak enough to comply with it and to bribe the insolent chiefs into abstaining from murder. They think any insult or injury can be repaired by payment of money or goods. The murder of a relative can be atoned for by a certain number of blankets (their common currency since their first acquaintance with Caucasians). Wounds and injuries are assessed in proportion. A refusal to marry a widow of an uncle or elder brother can also be settled by the payment of blankets. Wars are frequently avoided by an indemnity arrangement, and they go so far in this system of compensation that they demand payment for losses from parties who have been in no way instrumental in causing them. For instance, an Indian of Sitka broke into the room of two miners in their absence, emptied a demijohn of liquor, and died in consequence, and the relatives of the robber demanded and received payment from the unfortunate Caucasians. If a man be attacked by a savage dog and kills him in self-defense, he must pay for the dog to the Thlinket owner. A small trading schooner, while running before a furious gale, rescued two Thlinket from a sinking canoe, which had been carried to sea. The canoe was nearly as long as the schooner and could not be carried or towed, seeing which the natives themselves cut the worthless craft adrift. When the humane captain landed the rescued men at their village he was astonished by a peremptory demand for payment for the canoe, backed by threats of retaliation or vengeance.

The observations of the priest Veniaminof, who labored patiently among the people in the cause of Christianity, and those of several subsequent explorers, are embodied in the following summary:

The tribe or race who call themselves Thlinket—that is, "man" in their own language—but who received from the Russians the names of Kaliushi, Koliushi, or Kolosh, inhabit the coast of North America from Mount St. Elias to the Columbia River, or from latitude 60° to 45° north. The subject of my investigation, however, has been that

portion of the race living north of the Nass River, or of the British boundary. Veniaminof estimated the number of the whole race at from 20,000 to 25,000 living within the Russian lines, but the estimate was made in 1840, and if it was once correct a remarkable decrease in numbers must have taken place since.

The term Kolosh, applied to the Thlinket by the Russians, is not recognized by themselves. It is a term perhaps derived from the Aleut word kaluga, signifying a trough or wooden dish. When the first Russians encountered the Thlinket in the vicinity of Sitka the Aleutian hunters were struck with the remarkable lip ornament of the Thlinket women, consisting of a trough-shaped disk inserted in an incision of the under lip. In speaking of these natives they probably described them as people with "kalugas," of which latter word kalushka would be the diminutive, and thus it is supposed the Russian name of the tribe originated. It is difficult to determine the authenticity of this deriviation, as we meet in all sections of the former Russian colonies with provincialisms of Yakutish, Kamchatkan, and Aleutian origin. It is a significant fact, however, that the oldest authors on the subject used the term Kaliushi or Koliushi, while only the later writers adopted the word Kolosh. In Sitka, at the time of the transfer of the country, the ancient form had become altogether obsolete.

Holmberg noticed that in Sitka it was the practice to address a native with the word shniaga, and claims that this also had become a term signifying the whole race. The Russians claimed that this expression is of Thlinket origin, but this seems to me not supported by evidence. When a Thlinket addresses a Russian he also uses the word shniaga, which seems to signify "friend, or good friend, listen," or something equivalent. But as there is no similar word in the Thlinket language expressing the same meaning, we may surmise that the Thlinket adopted the word from the Russian, modifying it probably to suit their own idiom. The Thlinket themselves state that the term was adopted from the Russians; it is only too probable, therefore, that the word shniaga sprang from the Aleutian or some other native tongue of Alaska or Kamchatka. The Thlinket themselves adopt names from their principal places of residence, such as Sitkakhoan, Chilkhatkhoan, and Stakhinkhvan—that is, people of Sitka, Chilkhat, and Stakhin. Russians and other European nations with whom they have come in contact were named by them Kusskhakhoan, but to the Americans, with whom they always carried on a clandestine traffic in firearms and powder, they applied the name of "Whashtankhoan." As the roots of these two names we easily recognize the words Cossack and Boston. The first word probably sounded at first Kussakekhoan. Among the Eskimo of the west the same word is in use as Kossage and Koshage.

The Thlinket tribe is divided into two branches or clans, the Raven and the Wolf family, respectively. Their myths or traditions speak of two heroes or gods, who at the beginning of time, through deeds of valor and supernatural power, procured for mankind the advantages and comforts they now enjoy, and to these heroes the Thlinket think they trace their origin. The names of these beings or demigods were Yeshl or Yehl, the ancestor of the Raven clan, and Khenookh, the ancestor of the Wolf family. In spite of this theory of their origin, the raven and the wolf, considered as animals, do not take an important place in the Thlinket mythology. In discussing the mythology or beliefs of the Thlinket we shall find that Yeshl (or Yehl) during his frequent transformations occasionally adopted the form of the raven,

and in this way the name of the god may have come to be applied to the bird. It may have been the same with Khenookh, though the traditions make no mention of his appearance in the form of a wolf.

Both the Raven and the Wolf clans have many subordinate divisions. Thus, in the Raven clan we hear of the Raven, the Frog, the Goose, the Sea Lion, the Owl, the Thlukhu (a species of salmon), and in the Wolf clan the family of the Wolf, the Bear, the Eagle, the Porpoise, the Shark, etc.; and each of these subfamilies is again divided into branches in accordance with the locality occupied by it.

The Raven clan, which claims to have sprung from Yeshl, the benefactor of mankind, enjoy perhaps the greatest respect, but the Wolf clan has acquired renown through its greater courage, large numbers, and successful warlike expeditions and heroic deeds.

The most renowned of the subdivisions of the Wolf clan is the Khawakhashthan or Kokhanthan, living on the Chilkhat River, which formerly held but little intercourse with other clans and maintained a reputation for courage and ferocity. Each clan or family displays in every possible way the totem or coat-of-arms in the shape of some easily-recognized part of the animal or bird that has given the name to their division. We find such representations carved or painted upon canoes, utensils, blankets, shields, wooden helmets, and even on their horses; and on solemn occasions, during dances and feasts in memory of the dead, cremations, or other funeral ceremonies, we frequently find individuals dressed up altogether in the form of the totem of the clan.

Without reference to clan or subdivision all the Thlinket are divided into two classes, one containing the chiefs or the nobility, the other the common people. The chieftainship is hereditary in the families, but the authority connected therewith is entirely dependent upon wealth, which until of late consisted chiefly in the possession of slaves. The latter, if they belonged to the Thlinket tribe, formed a third class, as the children of a slave always remained slaves, but the majority of this class were originally prisoners, acquired by purchase or by war from other tribes to the southward, in the British possessions.

Veniaminof's opinion of the division of the Thlinket clans was that at the beginning only two families existed, the oldest and most prominent members of which were Yeshl and Khenookh. Their children adopted the names of various animals, and still live together, though in separate houses. Each house was described by name in accordance with its position (on a hill, or on the shore of a river or lake); but when in course of time the descendants increased in number they were obliged to seek other dwelling places, carrying with them, however, the name of the abandoned locality and the proud title of a "son of Yeshl" or a "son of Khenookh." These names have descended to modern times, while the progenitors, whose memory is carefully preserved, were finally worshiped as god-like beings to whom the Thlinket owe all they possess of earthly happiness.

The traditions of the Thlinket unite in the theory of their common origin in the interior of the American continent, whence they migrated northward and westward until they emerged upon the coast of the Pacific in the vicinity of Queen Charlotte Island. An apparent similarity between the languages of the Apache and Aztec tribes and that of the Thlinket, and perhaps also of the Athabaskan tribes of the north, has been hinted at by many ethnologists and explorers since the days of Wrangell, who first called attention to the circumstance.

The outward characteristics of the Thlinket tribe may be enumerated as follows: The coarse, stiff, coal-black hair; dark eyebrows, but faintly

delineated over the large black eyes full of expression; protruding cheek bones; thick, full lips (the under lips of the women disfigured by the custom of inserting round or oval pieces of wood or bone), and the septum of the men pierced for the purpose of inserting ornaments; beautiful, white teeth; ears pierced not only in the lobes, but all around the rim. To these may be added the dark color of the skin, a medium stature, and a proud, erect bearing (this only applies to the men). The hands of the women are very small, and large feet are rarely met with.

Before their acquaintance with the Russians the only clothing of the Thlinket consisted of skins sewed together, which they threw around their naked bodies without regard to custom or fashion. In addition to this they wore on festive occasions blankets woven out of the fleeces of mountain goats. From time immemorial they have possessed the art of dyeing this material black and yellow by means of charcoal and a kind of moss called sekhone. The patterns of these blankets wrought in colors exhibit an astonishing degree of skill and industry; the hat, plaited of roots, is also ornamented with figures and representations of animals.

By nature the Thlinket are indolent, those inhabiting the coast frequently living upon the refuse of the tide upon the beach that can be obtained without exertion. As long as they lived in their primitive state, and before the creation of artificial wants, the men of the Thlinket tribes were urged to exertion only by the rigorous climate, which compelled them to hunt fur-bearing animals and to use their skins as clothing. As their wants increased, however, they overcame their natural indolence, and now they labor faithfully and cheerfully for the sake of increasing their means of purchasing whatever takes their fancy.

The male costume is but little distinguished from that of the females, each wearing now (unless they have adopted the garments of civilization) one cotton shirt or garment reaching to the knees, a woolen blanket of various colors, white, red, green, and blue, and ornamented in front with rows of brass or pearl buttons. These blankets they wear much in the manner prevailing among the Indians of the United States and Mexico, throwing one end over the shoulder. Occasionally the garment is tightened around the waist with a gorgeous belt. As a rule, the Thlinket of both sexes go barefooted.

Both men and women paint their faces black and red with charcoal or soot and vermilion (cinnabar), which are their favorite colors. They are mixed with seal oil and rubbed well into the cuticle. Subsequently figures and patterns are scratched upon this surface with sticks of wood. The wealthy Thlinket paint their faces every day, while the plebeians indulge in this luxury only occasionally.

The men pierce the partition of the nose, the operation being performed in early childhood, frequently within a few weeks after birth. In the aperture thus made a silver ring is sometimes inserted large enough to cover the mouth, but the poorer individuals insert other articles, such as feathers, etc. They also pierce the lobes of the ear for the purpose of inserting sharks' teeth, shells, and other ornaments, while through the holes around the rim of the ear they draw bits of red worsted or small feathers. Veniaminof states that each hole in the ear was pierced in memory of some event or deed.

The ornamentation of the under lip of a female (now almost obsolete) marked an epoch in her life. When she came to the age of puberty the lip was pierced and a small cylindrical piece of bone or silver was inserted. As long as she remained single she wore this, but as soon as she was married a larger piece of wood or bone was pressed into the

opening and annually replaced by a still larger one, the inner side being hollowed out. Old women could frequently be seen with such labrets 2 inches in diameter. It was of course impossible for these individuals to close their mouths, the under lip protruding, distended by the disk of wood or bone, in the most disgusting manner—the failure to close the mouth causing an incessant flow of saliva, and often offensive pus.

The Thlinket, like most of the tribes of the northwest coast of North America, may be called marine nomads, as they occupy fixed dwelling places only during the winter, roving about during the summer in search of food for the winter. They derive their principal nourishment from the sea, a few roots, weeds, and berries forming luxuries only of the summer season. The sea that washes the shore is extraordinarily rich, not only in fish, but in all kinds of mollusks and algæ. The ebb tide bares the shore twice each day and leaves behind an abundance of such food in pools and on the rocks, enabling a Thlinket to pick up his dinner without much exertion. He refuses no kind of mollusk and consumes nearly every species of marine plant. His favorite articles of food are clams and mussels (*cardium* and *mytilus*), *echinus*, cuttle fish, the roe of herrings, and all kinds of fish. The herring's spawn is collected together with algæ, upon which it has been deposited, and preserved in boxes for the winter. This delicacy is not considered fit for the table until it has gone through a process of fermentation. Oil is pressed out of this preserved spawn of a higher and "finer" flavor than that of seal oil. Of the cuttle fish only the arms are eaten, and these are boiled until the slimy particles coagulate. In contradistinction from the Eskimo, the Thlinket do not eat their fish raw; the cooking is now done in iron kettles, but in former times they used for this purpose water-tight baskets, into which heated stones were thrown. The fish intended to be kept for the winter is not dried in the sun, as is done by the Eskimo, but suspended in the smoke of the house.

The larger marine animals, such as the seal, otter, and porpoise, are much hunted and furnish abundant food to the Thlinket, but the meat of the whale is held to be unclean, being despised by all the Thlinket as pork is by the Jews, with the exception of the Yakutats living in the vicinity of Mount St. Elias. This change in habits may have been caused by the vicinity of the Yakutats to Eskimo tribes, a supposition which is strengthened by the fact that the Yakutat females do not wear the horrible ornament in the under lip.

The Thlinket dwelling within the boundaries of Alaska live in fixed settlements, but in the summer they leave their villages and roam about at will, erecting temporary shelters with poles and bark wherever they remain for a time. The winter house is erected with great care and is frequently built strong enough to serve as a fortification against the attacks of other tribes. The height of the Kolosh or Thlinket house is from 6 to 8 feet and consists of a parallelogram of heavy logs; rafters joined at an angle of 45 degrees and covered with bark form a roof. The entrance consists of a small aperture, generally circular, but occasionally square in shape, at some distance from the ground. Each of these apertures can be closed from within by a ponderous door. In the center of the roof there is a large square opening which affords an entrance to daylight and an exit for the smoke. A screen of planks is always placed on the weather side of this opening and shifted about in accordance with the wind. Immediately under the opening in the roof is a large fireplace sunk a little into the ground. The floors in the houses of the wealthy consist of plank, but commonly of the bare soil. On two sides of the interior of this edifice are partitions for storage of

sions and utensils, while in the background opposite the entrance is a number of small box-like partitions serving as sleeping and tion rooms for individual members of the family. These latter ments are not high enough to permit the inmate to stand erect, arely large enough to allow him to stretch out.

› Thlinket display the greatest skill in the manufacture of their s, each being carved out of a single log. The war canoes differ those in common use only in size, the former being intended to from 40 to 50 people, while the latter do not hold more than 10 or The shape is substantially the same, and all are ornamented in nd stern with gaily colored figures and carvings, the war canoes ently bearing the totem of the owner. The handles of paddles or re also similarly ornamented.

ıg before the first meeting of the Thlinket with the Europeans, onsequently before they became acquainted with the use of iron, possessed the art of forging copper, which they obtained from the itants of the Copper River region. A tradition exists to the effect ın old woman of Chilkhat invented the art of forging, and that as worshiped in consequence as a benefactress of her kind. For years this art was a hereditary secret with certain families. Dag- and spears are now manufactured chiefly of iron. The dagger is broad and has two blades, one on each side of the handle, the one generally much shorter than the lower, and the handle is d with leather thongs and provided with a long strap which is ıround the neck during combats to prevent the dropping of the on. Both blades have leather sheaths, also fastened to the person. dagger is the inseparable companion of the Thlinket; wherever go they carry it concealed under the blanket. In the market of where they dispose of game and fish, they are seldom seen with- t. The iron-pointed spear was used only in war and has been st entirely superseded by firearms.

e greatest ingenuity is displayed by the Thlinket in their carvings ood, bone, and slate, but chiefly in the manufacture of tobacco , cups, etc. This work is now done altogether with implements of

the modes of hunting a great change has naturally taken place the introduction of firearms, and the sea otter, formerly in the est abundance, is now almost extinct. Superstition interferes with tive pursuit of marine birds, as it is generally believed that the g of the albatross and several other species causes bad weather. bear was formerly rarely hunted by the superstitious Thlinket, who been told by the shamans that it is a man who has assumed the of an animal. They have a tradition to the effect that this secret ture first became known through the daughter of a chief who came ıtact with a man transformed into a bear. The woman in question into the woods to gather berries and incautiously spoke in terms licule of the bear, whose traces she observed in the path. In pun- ent for her levity she was decoyed into the bear's lair and there elled to marry him and assume the form of a bear. After her hus- and her ursine child had been killed by her Thlinket brethren, she ned to her home in her former shape and narrated her adventures. since that time women on observing tracks of a bear at once to speak of him in terms of greatest praise, and continue in this ı until they are "out of the woods."

greater importance than the chase, perhaps, is the fishery of the ket. The herring catch is conducted in the following manner: A

pole about 10 feet in length is armed with iron points or nails at one end, at intervals of an inch from each other. The Thlinket fisherman propels his canoe into the midst of a school of herrings and beats the water with his pole, bringing forth a herring transfixed by each iron point at nearly every stroke. The canoe is speedily filled in this manner. The halibut is caught in very deep water with wooden hooks pointed with iron or bone, the line consisting of kelp. A small fish named ssakh (the eulachan, or candle-fish), the oil of which is very highly prized by the Thlinket, is caught in baskets. A Thlinket chief, when asked whether these baskets were their own invention or introduced from abroad, related the following story:

A long time ago there lived on Thlamshashakhian (Cross Sound) a Thlinket named Khakhekhuthe, who with three companions undertook a long voyage in his canoe. They could not make a landing at night, and laid themselves down in the bottom of the canoe to rest. Khakhekhuthe lay with a paddle under his head, and dreamed that various birds were flying about him, screaming. He seized a paddle and struck about, and at every stroke a bird fell. When he awoke he found his companions dead in the boat, so that he was compelled to return homeward alone. Here again a sorrowful spectacle met his eye. All his people and all the inhabitants of the place had died during his absence. Then he concluded to go in search of people at some other place. On his journey he arrived at a river, the mouth of which was full of small fish. While deliberating on the best way of securing some of these fish without hook or line he invented a basket of pliable willow twigs, and this art was transmitted to all the Thlinket he met.

This is the trivial ending of a promising tale transmitted to us by Holmberg.

The marriages of the Thlinket are without any religious ceremonies or observances, but a very strict rule exists preventing the contraction of marriage within one and the same clan; or, in other words, a Thlinket of the Raven clan must marry a wife of the Wolf clan, and vice versa. Polygamy is universal, especially among the wealthy, but the first wife always preserves a supremacy over the others. Veniaminof stated that he knew a chief on the Nass River who had forty wives.

When a Thlinket youth has selected a maiden to his taste he sends a middleman to the parents or to the nearest relative of the woman; if the answer is favorable he sends to the future father-in-law as many presents as he can buy, borrow, or steal, and then proceeds to the spot in person. The father of the betrothed invites for a certain day all the relatives of the bridegroom, as well as his own, and when all the guests have assembled the young man advances to the center of the floor and seats himself with his back to the door; the guests then begin a song, accompanied with dances, in order to coax the bride from her hiding place in some corner of the room: After the song, which is composed only for this occasion, is finished the floor is covered with cloth, furs, and other articles of value from the hiding place of the bride to the seat of the groom, and the maiden in festive array is led over this costly pathway and seated beside her intended.

During this and all the subsequent ceremonies it is of the greatest importance that the bride shall not raise her head, but keep it in a bent position. Dances and songs follow, which are participated in by all present except the young couple, and when the dancers are tired refreshments are served to all except the bride and groom, as in order to secure good fortune the latter are obliged to fast two days. When this period has elapsed they are furnished a small quantity of food, but this meal is followed by another fast of two days, and only after four days of fasting are they allowed to remain together, but the marriage is not considered accomplished until four weeks have elapsed. If the bridegroom is rich he gives a similar feast at his own residence, and when the festivities

› to a close he is at liberty to live with his wife's parents or at his home. In the latter case the bride receives a dower equal in value ıe presents made by the bridegroom. This marriage can be dis- ıd at any time by mutual consent, but in that case the presents and ır must be returned. If the man is dissatisfied with the woman he ıend her home, returning the dower without any claim for a return is presents, but if the woman proves unfaithful the man has the t to reclaim his presents and to send her away without her dower. ll such cases the children remain with the mother.

ıuiaminof states that among the Thlinket, as well as some of the le of Kadiak, the married women are permitted to have what are d "legitimate lovers," or "assistant husbands," who are maintained ıe wives and enjoy marital rights only in the absence of the original and. At all other times they act as servants, carrying wood and r and providing food. Among the Thlinket the office of vice-hus- l can only be filled by a brother or near relative of the husband. ter the death of the husband his brother or a son of his sister must y the widow, and a neglect of this rule has frequently caused bloody . If no such relative of the husband is in existence the widow the right to select another from a strange clan.

the seducer of a wife escapes the dagger of the husband he must the forgiveness of the insulted man; but if the seducer is a relative ıe husband he must at once assume the office of "assistant," as ribed above, and contribute his share to the support of the woman. lot of the women among these savages is not to be envied; they treated with the greatest cruelty before as well as after marriage. special suffering imposed upon all womankind by nature is increased a hundredfold by ancient custom and superstition. At the time hildbirth, when women more than at any other time are in need of ıtance, the Thlinket females are driven out of the house and left to r fate, shunned by everybody as unclean. The child is born in the ı air, no matter at what season, and only some time after the birth ıe mother allowed to enter a rude shed, erected for the purpose, re she is confined for ten days.

olmberg relates the following:

ıen I was on the point of departure from Sitka for California, at the end of mber, 1850, I was detained for several days by bad weather and contrary winds, hip being anchored directly opposite the Thlinket village. On several occa- I noticed a heartrending cry of distress from the hills back of the village, and inquiry I learned that these were the cries of several women about to give to children, and who had been driven forth from their homes. There they lay ıg a violent storm of rain and snow, deprived of all assistance.

new-born child is not allowed to taste its natural food until it has lted, and if this does not occur naturally its little stomach is sed and squeezed until the desired effect is secured. At the age of r weeks the babe is wrapped in furs and strapped upon a board, is always carried about by the mother. The infants are given the st from ten to thirty months, but they are accustomed to other after they are a year old. The first strong nourishment given them enerally the raw blubber of marine animals, except that of the le. As soon as the child begins to walk it is bathed daily in the without regard to the season, which accounts to some extent for robustness of the body of the Thlinket after he has once passed tender age. On the other hand, this custom explains the decrease umbers, as only a comparatively small percentage of the children ive the ordeal. All the men of the Thlinket tribes preserve the om of bathing frequently in the sea both in summer and winter.

Each Thlinket has one name from his mother and another from his father. The first is applied immediately after the birth by the mother or her relatives, and is generally the name of some distinguished ancestor of the mother. The other name is taken from a deceased relative on the father's side, but this is applied only on some festive occasion or during some great memorial feast. Such Thlinket as are unable to provide a feast of this kind remain without the second name. A wealthy chief has the right to apply such a name at the time of birth of a son, but in that case the son is bound in course of time to celebrate a feast in memory of the paternal ancestor after whom he has been named. If a father possesses a son who has distinguished himself the father is named after this son, as "the father of such and such a one." Holmberg relates that among the principal chiefs of Sitka there was one whose name from the mother's side was Shighakhu, but during a great festival he received the name of an uncle, Kukhan. He was subsequently baptised and received the Christian name of Michael. As the most powerful and distinguished among the chiefs he ought to have had a distinguished son, and thereby derived the fourth name, but as he had no son the other Thlinket, in derision, called him after one of his dogs and spoke of him as "the father of such and such a dog."

As soon as a young girl arrives at the age of puberty she is confined in a dark shed with not room enough to move about. For a whole year she has to remain secluded here, being regarded as unworthy to enjoy the light of heaven, and during the whole time she must wear a broad-brimmed hat, so that she can not even look heavenward. Only the mother and a female slave have the right to bring food to her. It is easy to imagine the inexpressible misery this long imprisonment must cause. In the immediate vicinity of Sitka and other settlements, however, the Thlinket have reduced the period of seclusion to six, and in some instances to even three months. During the first weeks of this imprisonment the operation of piercing the under lip takes place. Female slaves are excepted from all such ceremonies and observances.

All observers and visitors at Sitka have noticed that the Thlinket women have a waddling, crooked, and sometimes even a limping gait, which seems all the more remarkable in view of the proud and erect bearing of the men. It would be a natural conclusion to ascribe this defect to this long period of imprisonment at a time when the female body is developing most rapidy, but we find the same custom to exist among Eskimo tribes, with even stricter rules, without causing a similar change in the gait and bearing of the women.

After the period of seclusion of a wealthy female Thlinket has expired the relatives provide a feast, during which the girl, richly clothed, is presented to the assembled guests, who have been feasted and treated to all the delicacies of the Thlinket cuisine. The female slave who assists in dressing the girl for this festivity generally receives her freedom, and the garments worn during imprisonment are destroyed.

The Thlinket consider corporal punishment as the greatest disgrace that can be inflicted upon a free man, and consequently they do not, as a rule, make use of it. On one occasion, however, it may be employed. When a boy refuses to bathe in cold water he is compelled by beating with a stick to do so; but this is looked upon not as a punishment, but as a means of hardening the body. Theft is in their opinion not much of a crime; and if a thief is caught he is only required to return the stolen article or pay its value. For murder the law is, "blood demands blood."

The wars of the Thlinket, now of rare occurrence, were either general

or private in character. The general wars were conducted with great cruelty by means of ambush or surprise, and the captives were made slaves. Early English and American visitors to the Thlinket coast reported the existence of the practice of scalping and that scalps were used on festive occasions to ornament the legs of the dancers. It is impossible to ascertain whether the Thlinket ever were cannibals, and nothing has been stated on this point by early explorers. Only the English Captain Meares, who sojourned for some time at Nootka Sound, states that the natives there, who are closely related to the Thlinket family, acknowledged to cannibal practices.

When a Thlinket warrior prepared himself for a war he painted his face red and powdered his hair with the white down of the eagle. The last-mentioned decoration is always an indication of great solemnity in the undertaking.

The private wars consisted only of quarrels between subordinate clans or families, and occasionally such disputes were settled by single combat. In this case each party to the contest chose one fighting man from their midst. The two families or clans were drawn up in order of battle, while the two combatants, provided with thick armor made of moose or bear skin, and with wooden helmets, carved in the shape of the family totem, protecting the head. The only weapon used on such occasions was the dagger, and the contest was accompanied with dancing and singing on both sides. When peace was made an exchange of hostages took place, and it was the custom for the latter to eat for several days only with the left hand, the right having borne arms too recently. To each hostage two companions from the opposite side were assigned to watch him, and these companions had to be of equal rank with the hostage.

The Thlinket burn their dead upon funeral pyres, with the exception of the bodies of shamans or sorcerers, which are deposited in boxes elevated on posts. The dead slave is not considered worthy of any ceremony whatever; his corpse is thrown into the sea like the carcass of a dog. When a Thlinket dies his relatives prepare a great feast, inviting a multitude of guests, especially if the deceased has been a chief or a wealthy and prominent member of a clan. The guests are chosen only from a strange clan; for instance, if the deceased belonged to the Raven clan the guests must be from the Wolf clan, and vice versa. No certain time is set for the cremation or for the festivities; this depends altogether upon the magnitude of the preparations, and it frequently occurs that the corpse is in an advanced stage of putrefaction when the time arrives. Poor people, who are unable to defray the cost of such ceremonies, take their dead to some distant cove or bay and burn them without any display. When the guests have assembled and the pyre has been erected, the corpse is carried out of the village by invited guests and placed upon the fagots. The pyre is then ignited in the presence of the relatives, but these latter take no active part, confining themselves to crying, weeping, and howling. On such occasions many burn their hair, placing the head in the flames; others cut their hair short and smear the face with the ashes of the deceased. The Thlinket of Prince of Wales Island boast of torturing themselves in the most reckless manner at the time of cremation, slashing and tearing their arms with knives and beating and bruising the face with sharp rocks. When the cremation of the body has been accomplished the guests return to the dwelling of the deceased and seat themselves with the widow, who belongs to their clan, around the walls of the hut; the relatives of the deceased then appear with hair burned and cropped, faces blackened and disfigured, and place them-

selves within the circle of guests, sadly leaning upon sticks with bowed heads, and then begin their funeral dirges with weeping and howling. The guests take up the song when the relatives are exhausted, and thus the howling is kept up for four nights in succession, with only a brief interruption for refreshment. During this period of mourning, if the deceased had been a chief, or wealthy, the relatives formerly killed one or two slaves, according to the rank of the dead, in order to give him service in the other world. This is the only indication of the existence of a belief in a future life by the Thlinket. At the end of the period of mourning, or on the fourth day following the cremation, the relatives wash their blackened faces and paint them with gay colors, at the same time making presents to all the guests, chiefly to those who assisted in burning the corpse. Then the guests are feasted again, and the ceremony is at an end. The heir of the deceased is his sister's son, or, if he has no such relative, a younger brother. I have already mentioned that the heir was compelled to marry the widow.

The festivities of the Thlinket consist almost exclusively of singing, dancing, gorging, and a distribution of presents. The dance consists of very rapid motion and passionate action, according to the wording of a song or the significance of the feast. All the festivities I have thus far mentioned belong, with the exception of cremation, to the occasions of minor importance; of the same class are the festivities on the occasion of moving from one dwelling place to another, which form a parallel to the house-warming of civilization; so also are the sorceries or incantations. This subject, however, will be more properly discussed with the religious views of the Thlinket. It sometimes occurs that dancing and singing are carried on without any apparent motive, and on such occasions imitations of the actions during the greater festivities are given, apparently with the object of keeping them fresh in the memory of the people by repetiton.

The festivity in memory of a deceased relative is by far the most important celebrated among the Thlinket. They call it "to glorify the dead," and frequently monuments are erected during such occasions, not so much in honor of the deceased as in memory of the feast and its giver. However, as only the wealthy are able to celebrate such feasts, and the expense is exceedingly great, they are of rare occurrence. Guests are invited from many distant settlements, and all these must not only be fed but also loaded with presents. It frequently happens that the giver of a feast thus squanders not only his whole possessions but also the dower of his wife, the result being a life of the greatest penury for himself; but he is satisfied with the honor of having celebrated the memory of his deceased ancestor in a dignified manner.

Sometimes these festivities are confined to one family, sometimes a whole settlement is invited. Long before the period agreed upon arrives, messengers are sent out near and far to call the guest from distant clans or tribes, not by name, but simply saying that all may come who wish to do so. Frequently women and children accompany the guests. The house designated for the celebration is cleansed as much as possible, or perhaps a new house is erected for the purpose, ornamented within and without with the totems of the possessor. When the guests arrive the feast begins with dancing and singing, lasting until the following morning; then comes the grand repast, of which only the guests, who always begin the festivities, have a right to partake. For many days and nights singing and dancing are only interrupted by eating, and the whole celebration continues as long as the giver of the feast is able to feed the visitors. On the evening of the

conclusion of the ceremonies the host retires to a corner of the house accompanied by a slave, and there is adorned with garments used only on such occasions and kept as heirlooms in the family. These garments vary in the different clans, and consist chiefly of parts of the animal represented by the totem of the clan. This dress formerly was ornamented with sea-otter teeth, ribbons, strips of ermine skin, etc. The slave who assists his master in dressing for this feast always receives his liberty.

As soon as the host emerges from his concealment in georgeous array, surrounded by slaves, the whole assembly breaks out into the cry of the animal representing the family totem. (Holmberg states that in accordance with the peculiar tone or inflection of his cry one or more slaves were killed.) Upon completion of this sacrifice the relatives of the host begin the traditional songs of their clan, singing of the origin of the family and the deeds of their ancestors. Then the host seats himself on the floor, and the presents intended for distribution are deposited before him. The distribution is by no means equal, the wealthy and the most prominent individuals receiving the greater number of presents of the greatest value, often consisting of slaves, while the poor have to be satisfied with worn-out blankets or even fractions of the same. This virtually ends the festivity, but frequently a repetition of the whole affair occurs in the next house, and so on until the whole settlement has contributed to the splendor of the occasion. As has already been mentioned, the giver of such a feast has the right to adopt the name of an ancestor on his father's side.

Another festive occasion must be mentioned, which also belonged to the more important feasts, and was intended to give social standing to children. Great expense in the shape of presents was connected with this feast, but at present it is rarely observed. It is very similar to those already described, differing only in a few minor ceremonies. No slaves were killed on these occasions, but on the contrary a number of them, equal to the number of children in whose honor the feast was given, were liberated. For this occasion a new house was erected with the assistance of the invited guests as well as of the people of the clan. All who participated in the labor, without regard to family, received presents, while at all other feasts only the guests were thus remembered. After singing and dancing and the distribution of presents the children were introduced one by one and subjected to the operation of piercing the ears. As soon as the awl was introduced and the puncture made all persons present gave forth a hissing sound, probably with the intention of smothering the cries of the children. After the operation presents were again distributed and a final repast indulged in.

Before turning my attention to the religious views and myths of the Thlinket, I must say a few words of the unfortunate beings who were considered by their masters as merchandise, and given away or killed at their pleasure. The slaves of the Thlinket all sprang from prisoners of war (but frequently the prisoners of one clan were purchased by members of another), or they were born of female slaves. Though under the Russian rule wars among the Thlinket tribes became of rare occurrence, the number of slaves did not diminish. The supply was kept up by barter with the more southern tribes, and at that time a majority of the slaves belonged to the Flathead Indians of the British possessions.

The slave enjoyed no civil rights whatever among the Thlinket. He could not possess property, and if he acquired anything by labor or by gift it was still the property of his master. He could not marry without his master's consent, and very rarely was he allowed to do so at all.

As already mentioned, slaves were killed on festive occasions or liberated. The liberated slave was invested with the rights of the lowest grade of the Thlinket, and was counted with the clan to which his mother belonged. This rule held good with the slaves from the British possessions, as there also the natives are divided into the Raven and the Wolf clans. Rarely an able-bodied slave was slaughtered on festive occasions, as he was looked upon as merchandise of the greatest value, difficult to replace. If an intended victim managed to escape or to conceal himself he was allowed to live, and might return after the conclusion of the festivities at the house of his master without incurring punishment. It frequently occurred that powerful chiefs assisted favorite slaves on such occasions to make their escape. The universal rule was, however, to select for the sacrifice only the old or diseased slaves who were more of a burden than profit to their masters. Of the honor of cremation after death the slave was deprived.

In the Thlinket mythology Yeshl or Yehl occupies the place of creator of all beings and things, and his power is unlimited; he created everything in the world, the earth, man, plants, etc., and assigned the sun, the moon, and the stars to their places. He loves mankind, but in times of anger he sends disease and misfortune. He existed before his birth; he does not grow old and does not die, and with the east wind the Thlinket receive tidings of his existence. His dwelling-place is at the place nearest where the east wind blows (called by the Thlinket Ssannakhe). The Thlinket locate this place about the source of the river Nass, which enters the sea near the British boundary. This locality is still called Nass-Shakiyeshl. Yeshl has a son, but his mother and the circumstances of his birth have remained unknown. The son loves mankind still more than his father, and it frequently occurs that he intercedes with the latter in his wrath and supplies mankind with food. That Yeshl is the origin, the ancestor of the Raven clan, has been already mentioned. The life and deeds of Yeshl form the only thing in the shape of dogma in the belief of the Thlinket, and their whole moral code is comprised in the doctrine, "As Yeshl lived and acted, so must we live and act." There was a time when the world was not and man lived in the dark; at the same time there was a Thlinket who had a wife and a sister; the former he loved so much that he would not allow her to do anything; she sat the whole long day in her cabin, or outside upon a little hill, just as the Thlinket love to do now. She had always eight little birds about her with a bright red color, such as come up to this part of the coast from California, and are called kun by the Thlinket; and whenever she indulged in the most innocent conversation with any other Thlinket the birds flew away and thus informed the jealous husband. His jealousy, however, went still further; every time that he went to the woods to build canoes, in which art he was a great master, he placed his wife in a box, locking the same. His sister had several sons—it is not known by whom—but the suspicious uncle killed them all, one after the other. As soon as he noticed that the nephew was approaching manhood, and perhaps cast his eyes upon his wife, he invited him to go fishing in his canoe, and as soon as they were at a distance from the shore he upset the canoe of the nephew, and thus got rid of a possible rival. At length the mother, inconsolable over the loss of her child, walked along the shore weeping; she observed a number of large dolphins or whales passing by the shore, and one of them hastened to enter into conversation with the mourning mother. When he learned the cause of her sorrow he advised her to go into the water, pick up a small pebble from

the bottom, swallow it, and then drink copiously of sea water. As soon as the whale had left she followed his counsel, and the consequence was that in eight months later she gave birth to a son whom she considered a common mortal, but it was Yeshl. Previous to his birth the mother concealed herself from her brother. When Yeshl grew up to boyhood his mother made him a bow and arrow and taught him their uses. Yeshl soon became an expert and a successful marksman, so that no bird could escape his arrow, and as proof of his great skill it is narrated that the mother had a long garment made entirely out of the skins of humming-birds shot by the son. One morning when Yeshl arose he saw seated before the door of the hut a large bird with a tail as long as that of a magpie, and provided with a long, strong bill with a metallic luster. This bird the Thlinket named kutzghatushl—that is, a crane who can reach heaven. This bird Yeshl killed and carefully removed its skin, which he put on himself, and immediately expressed not only the desire but the power to fly. He arose at once into the air and flew so far that he struck against the clouds with this bill with such force that he remained hanging, and only with difficulty succeeded in extricating himself from his disagreeable position. As soon as he had freed himself he returned to his hut, doffed the bird's skin, and concealed it. At another time he killed in a similar manner a gigantic duck, and thereby procured for his mother the power to both swim and fly.

When Yeshl had grown up to manhood he heard from his mother of the crimes of his uncle and the sad fate of his brethren. He set out at once to revenge himself, and soon reached the dwelling of his uncle, who was absent in the forest working. He opened at once the box in which his uncle's wife was confined, and the birds flew away. The uncle returned homeward in a great rage, but Yeshl sat calmly without stirring from his place. The uncle then called him out of the hut, led him into a canoe, and paddled out to sea to a spot where a number of marine monsters were sporting about. Here he threw him into the water, believing that he was rid of another enemy, but Yeshl walked along the bottom of the sea to the beach and rejoined his uncle. Seeing that he could not destroy his nephew by any common means, he ordained in his wrath that a flood should arise, and the ocean began to rise higher and higher, but Yeshl again crawled into his bird skin and flew away to the clouds, hanging there with his bill until the flood had covered all the mountains, just touched his wings, and then subsided. Then he let go his hold, fell into the sea upon a bunch of kelp, and a sea otter carried him thence to the shore.

The Stakhin Thlinket tell this story somewhat differently. They say that Yeshl after his aerial flight fell down upon Queen Charlotte Island, and picking up pieces of the wood of the Douglas pine (called by the Thlinket shlakh, by the Russians chaga, of which the best canoes are made) in his bill he flew all over the other islands, and wherever he let fall a piece of this wood, there this tree, which is highly prized by the Thlinket, grows now. It seems that he did not reach the island of Sitka, as this species of pine does not exist on the island.

From this period began all his journeys through the world, which are so rich in adventure that the Thlinket say one man can not know them all. Once he recalled to life some dead boys by tickling their noses with hair; at another time he obtained the fish ssakh, by inciting a fight between a gull and a heron; but the most remarkable of his deeds was the creation of daylight on the earth. Up to this time the sun, moon, and stars were not yet placed in the heavens, but were concealed

in three separate boxes by a rich and powerful chief, who guarded his treasures so well that nobody could touch them. When Yeshl heard of this he expressed a desire to obtain them, and how he succeeded is described in the following narrative:

The chief just mentioned had an only daughter whom he loved and pampered so much that she was not allowed to eat or drink anything until the father had examined the food or drink. Yeshl, aware of these circumstances, understood that it would be possible only to the grandson of the chief to obtain the light, and therefore he resolved to be born again by his daughter. This apparently difficult task was an easy one to Yeshl, who could assume any form he liked. Consequently he transformed himself into a blade of grass and leaned against the vessel out of which the chief's daughter was in the habit of drinking, and when, after due examination by the father, she lifted up the bowl to quench her thirst, Yeshl, disguised in the blade of grass, wriggled into her throat and was swallowed. The result was that in due time the chief's daughter was about to give birth to a child and her father spread a number of sea-otter skins on the floor to afford a soft couch, but all the efforts and assistance of servants did not seem to help in her labor. At last a very old woman led her out in the forest, and as soon as she had stretched herself on a couch of moss the birth took place. The grandfather was very much rejoiced over the birth of his grandson and loved him almost more than his own body. At one time Yeshl began to cry and would allow nobody to quiet him. No matter what they gave him—whatever was given to him he threw away and cried all the more, always pointing with his hand to where the boxes containing the heavenly lights were suspended. To give him these it was necessary to have the consent of the grandfather; however, as there seemed to be no end to his crying the old man gave him one of the boxes. Yeshl at once ceased his clamor and commenced to play with the box in great glee; gradually he dragged the box out of the house, and noticing that he was not very closely observed, opened the lid, and at once the stars were in the heavens and the box was empty. The sorrow of the old man over the loss of his treasures was inexpressible, but he never denied his beloved grandson. Yeshl soon after employed a simliar ruse to obtain the second box, which contained the moon. At last he invaded the last box, the most valuable of all, in which the sun was hidden, but the old ruse would no longer serve his purpose. The grandfather remained inexorable. Then Yeshl began to cry and weep so hard that he could not eat or drink, and became seriously ill. At that the grandfather's pity was aroused and he gave him the box with the strictest injunction that the lid must not be raised, but as soon as Yeshl had the box outside he transformed himself into a raven and flew away with the box. On his way he heard human voices, but could not see the people because no light as yet illuminated the earth. He questioned the people whether they desired to have light; they answered: "You will only cheat us—you are not Yeshl, who alone can give us light." In order to convince the doubters Yeshl raised the lid of the box and at once the sun shone from the heavens in all its splendor. The men ran away, frightened, in all directions; some of them into the mountains, some into the woods, and some into the water, and all of these were transformed into animals according to their hiding places.

The Thlinket were still without fire; those who had it were located upon an island far out at sea. Yeshl proceeded to this spot, with the help of his bird skin, picked up a burning brand in his bill and hurried back, but the journey was so long that nearly all the wood burned up, and even the point of his bill was scorched. As soon as he arrived on the shore he let fall upon the earth the glowing coal that still remained and the sparks were scattered over both wood and pebbles. From this time the Thlinket say both wood and stone contain fire, which can be obtained from the one by concussion and by friction from the other.

Fresh water was also not to be found on the islands and continent inhabited by the Thlinket, but on a small island a little to the eastward of Sitka there was a well, guarded forever by a watchman named Khenookh, the original ancestor of the Wolf clan. Yeshl again employed artifice in obtaining the boon of fresh water. He took as much as he could into his bill and then flew away to the islands and remained, letting fall here and there drops of the precious fluid. Wherever the little drops fell there are now rivulets and streams, and where the large drops fell lakes and good large rivers were formed. The ruse employed by

in stealing the water from Khenookh forms the subject of a sep-
radition.

nookh is, in the mythology of the Thlinket, a mysterious person
t beginning or end, wealthy, and more powerful than Yeshl; he
prominent part in this water myth. He was a man, as was Yeshl,
habited the island above mentioned. Even now the Thlinket say
square stone-capped well with a stone cover exists on the spot.
interior of the well they point out a narrow colored or striped
hich they say was not there from the beginning, but only since
stole the water. The water of the well is said still to possess
arious qualities. If an unclean being washes his hands therein
ter disappears from the well and rises on the seashore. The whole
orhood is still called Khenookh-keen—that is, Khenookh's water—
e at the time when Yeshl, for the benefit of mankind, undertook
erprise Khenookh guarded the well so strictly that he built his
over it and slept on the cover of the well. At one time Khenookh
iddling over the sea with his canoe, and meeting Yeshl, also in a
he asked him, "How long have you lived in the world?" Yeshl
l that he was born before the earth was in its place. "But how
ave you lived in the world?" asked Yeshl in his turn. "Since
ne," replied Khenookh, "when the liver emerged from the beach."
replied, "Then you are older than I am." Thus boasting against
ther they gradually left the shore point and Khenookh, desiring
lay his strength and power before Yeshl, took off his hat, and at
here came up a dense fog. Profiting by this, Khenookh turned
rom his companion, out of his sight. Yeshl became alarmed and
to call Khenookh by name, but he kept silent and concealed by
g. When Yeshl saw that he could do nothing in this terrible fog
an at last to cry and to shout. Then Khenookh came to him and
"What are you crying about?" and with these words he replaced
t upon his head and the fog at once disappeared. By this action
sed Yeshl to exclaim, "You are more powerful than I am." Then
okh invited Yeshl to his dwelling, and upon arriving there Yeshl
eated to fresh water. This pleased him so much that he could
t enough. After the repast Yeshl began to relate his deeds and
tures, and though his tales were exceedingly interesting, and
Khenookh listened at first with the greatest attention, he finally
nto a profound sleep, unfortunately still stretched upon the cover
well. Then Yeshl had to invent another ruse. He stole out of
it, killed a dog, and smeared the sleeping Khenookh with the
Then he shouted to the sleeper and said, "Arise, Khenookh,
ok upon yourself; you have been bleeding from the nose." Khe-
awoke suddenly, half dazed, and rushed out of the house into
to cleanse himself. Then Yeshl hastened to the well, lifted the
and drank his fill. After filling his stomach he took as much as
ld into his mouth, transformed himself into a raven, and tried to
from the cabin through the smoke hole, but his wings caught on
ing and the returning Khenookh at once recognized his guest
struggling raven. He made a fire and began to smoke Yeshl.
Thlinket think that the raven only turned black on this occa-
having been white before.) At last Khenookh grew tired and
escaped, allowing the water to drop upon the earth as heretofore
bed.

soon as Yeshl had done everything for the welfare of the Thlinket
ceeded eastward to his home, the Nass-Shakiyeshl, which was
sible not only to human beings but also to spirits. It is said

that in modern times a spirit attempted to reach the locality and was punished for his presumption by having his left side turned to stone. The mask of this same spirit, which was in the possession of the famous Chilkhat shaman, was miraculously affected at the same time, one side of the mask, which was originally of wood, being petrified. Yeshl in his capacity of God also bears the name of Hashakhoon, a name which has been applied to the God of the Christians (the common expression for the latter term is *Mokh*, a corruption of the Russian *Bogue*). The Thlinket have a very great number of subordinate gods or spirits, called by them *yekh* (in plural *yakh'h*), whom the shamans or sorcerers (*ikhth*) invoke during their performances. Every sorcerer, and they are very numerous, has his special spirits who are at his command, in addition to a large number of others upon whose assistance he can count only on special occasions. These spirits are divided into *khiyekh* or *khinayekh*, that is, the superior spirits, and into *takhiyekh* (land spirits who live in the north) and *tekiyekh* (water spirits). The khiyekh are the spirits of the braves who have fallen in battle. They live in disguise and reveal themselves in the aurora; consequently a strong northern light is considered by many Thlinket a prophecy of war. The takhiyekh are the spirits of those who have died a natural death, and their home is called Takhankhoo. The road to this place is not the same for all. Those over whose death the relatives cry or howl but little is smooth and even, but those who receive their whole measure of noisy mourning must walk over a swampy, wet road. The takhiyekh appear to the sorcerers in the shape of land animals, the tekiyekh in the shape of marine animals or fishes. In regard to the origin of the latter the Thlinket do not all agree. Some maintain that they are the spirits of the animals themselves. In addition to these each Thlinket has his own yekh, who attends him as his guardian spirit. When a man becomes wickedly inclined his yekh leaves him and sometimes kills him. The spirits seem to like cleanliness, as a rule, and they allow themselves to be conjured only with the sound of a drum, or another instrument which we have not yet described. This consists of a hollow wooden bird filled with small pebbles, so that every movement of the bird creates a rattling noise. This is used in all dances and songs.

The Thlinket believe in the immortality and migration of souls. The soul does not migrate into bodies of animals, but into other human beings, chiefly into relatives of the female line. For instance, if a woman before giving birth to a child sees in a dream a deceased relative, it is said that the latter's soul has gone into her; or if the newborn child resembles in any way the deceased, it is taken for granted that he has returned to earth, and the child at once receives his name. A Thlinket who envies a rich or noble family may be heard to say: "When I die I should like to be born again in this family;" others exclaim, "O that I might be slain speedily, so that I might be born again in this world under better circumstances." The souls of those who are cremated are wholesome and comfortable in the other world; others suffer with cold, but the souls of those in whose honor slaves have been sacrificed will never need to wait upon themselves.

The traditions of the Thlinket also speak of a general flood, during which the people saved themselves in a huge flat edifice. When the water receded this craft stranded upon a submerged log and broke in two, when the water receded still more. From this it is said comes the difference in languages, as the people in one-half of the broken vessel remained Thlinket, while those of the other half were changed into all the nations of the earth.

At the beginning of this flood a brother and sister were separated.

The brother's name was Khethl, that is, "thunder and lightning;" the sister's name was Aghishanookhu, that is, "wife under the ground." In taking leave Khethl said to his sister, "You will never more see me as long as I live." Then he donned the skin of a gigantic bird and flew away to the part of the world which we call southwest. The sister, after the separation, ascended Mount Edgecombe, in the vicinity of Sitka. The mountain opened its summit and swallowed her. From this time dates the great hole at the summit of the mountain (the extinguished crater). Khethl kept his promise to his sister and comes annually to Sitka. The thunder is the noise of his wings, and the lightning is the flash of his eyes. His favorite food consists of whales. The continuance of the sister's life in the interior of the mountain points to the origin of its volcanic nature. In the opinion of the Thlinket the earth, forming a disk, rests upon the point of a pillar, nicely poised. This pillar is held in the hand of the humane Aghishanookhu, who guards and watches it in order that the earth may not fall and be submerged in the water. But at times, when the gods hating mankind battled with her for the purpose of obtaining possession of the pillar in order to destroy the inhabitants of the earth, the earth trembles, but Aghishanookhu is strong enough to defend her children.

From another source Holmberg obtained a variation of this myth concerning Mount Edgecombe. "No," he said, "I have never heard that animals came out of Edgecombe, but in a great hole at its summit there lives the bird khunnakhateth [probably the name of the bird into which Khethl was changed], who, after seizing with each talon the whale, rises into the skies, producing thunder with the beating of his wings and lightning with the blinking of his eyes."

Having thus discussed the myths of the Thlinket, representing as they do the different dogmas and historic traditions as in a poetic dream interwoven with the darkness of fable, I now turn to the not less important subject of "shamanism," closely related to the former.

Sorcery or shamanism played an important rôle in the ancient history of all northern nations. Shamanism has existed among all of them, though in various forms and degrees, but their nature and character are always the same. We find in every nation of the world more or less superstition—that is, an inclination to explain by supernatural agency all that the mind is unable to grasp—but the particular kind of sorcery or shamanism referred to here belongs exclusively to the North. To explain the cause of this perhaps requires a very profound and searching insight into the physical and psychological condition of mankind in various climates, or perhaps it lies concealed in the magic darkness that envelops the sharply defined characteristics peculiar to polar regions. It appears that both shamanism and magnetism have their center near the pole, and both are in their inmost nature unknown and mysterious. We can observe only their effects manifested, as phenomena.

The words and actions of the shamans and sorcerers are considered as infallible by the Thlinket, who believe in them sincerely. Some shamans, it is not known why, prohibited the consumption of whale meat, which is considered a great delicacy by all other coast tribes of northwest America. In order to be a shaman it is necessary not only to possess the power to have various spirits at one's disposal, but also to call them whenever the emergency arose. On these occasions the shaman twists, throws, and paints his body in the most unnatural manner. The object of such sorcery is not only to reveal the future, but to ascertain all that is hidden and, with the help of spirits, to prevent or avoid misfortune and disaster. Shamanism is generally hereditary in families—that is, it is transmitted, with all its mysteries and

collections of apparatus, such as masks, drums, straps, etc., to the son or grandson of the shaman. However, the descendants of a shaman are not always able to follow in his footsteps, not possessing, perhaps, the power to call the spirits and to enter into communication with them.

A man who intends to prepare himself to become a shaman proceeds for a time into the woods or to the top of a mountain, where he may remain undisturbed by visitors. Here he passes from two to four weeks, feeding only upon the roots of *Pamax horridum* (called by the Russians nezamainik). The length of time depends upon the willingness of the spirits to appear. As soon as they come the most prominent among them sends a land otter, in whose tongue the secret and power of shamanism are believed to be hidden, to meet the aspirant. On sighting each other they both stop, and the man kills the animal, exclaiming four times "Oh!" in various keys. The otter then falls upon its back, the tongue protruding. This the shaman cuts off and preserves in a diminutive basket brought for the purpose. This talisman he conceals carefully from everybody. If it should happen that an unwashed being obtained this secret charm he would lose his reason at once. The skin of the otter is taken off and kept by the shaman as a sign of his profession, and the meat is buried in the ground. Owing to this tradition no Thlinket dared to kill a land otter previous to the arrival of the Russians at Sitka, but of late years experience and avarice have overcome the superstition in this respect.

If the shaman, after a long seclusion, does not find himself able to summon spirits, he proceeds, still fasting, to the grave of a deceased shaman, passing the night with the corpse and taking one or two of its teeth into his mouth. If this last effort prove successful the shaman returns to his people, half starved and much reduced in body, and as soon as he arrives his power and skill in sorcery are tested. The honor and power of a shaman depend upon the number of his spirits, and whose influence he caused to contribute to his wealth. Each shaman has his own spirits and a certain name and certain song for each of them. On many occasions he meets with the spirits of his ancestors, which increases his power to such an extent that he is enabled to throw his spirits into other beings who refuse to believe in his powers. The unfortunates to whom this happens faint away and suffer terrible cramps or faint ever after. If a shaman becomes ill his relatives fast for many days in order to help him. His apparatus is kept in separate boxes, and for each spirit he has a peculiar wooden mask. The hair of the shaman is never cut.

As has already been remarked the shaman is not cremated after death, but set by in an elevated box. During the first night the body is allowed to remain in the corner where the death occurred, but on the following day it is removed to another corner, and this is continued for four days, until the corpse has rested in every corner of the house. During this time all the inmates of the house must fast until on the fifth day, dressed in the full traditional costume, he is lashed upon a board, in the sides of which holes are pierced. Two bone sticks that were used by the shaman during his incantations are placed one through the hair and the other through the orifice in the partition of the nose, then the head is covered with a basket made of twigs and the corpse is carried to the place of burial, which is always located on the shore. Whenever a Thlinket passes the grave of a shaman he throws down some tobacco into the water (formerly, of course, it was some other article of value), in order to earn with this sacrifice the favor and good will of the deceased.

The shaman's incantation is generally conducted as follows: On the day set for the purpose the relatives of the shaman who assist him, especially the singers, are not allowed to partake of food and are obliged in addition to empty their stomachs, which they do by drinking tepid water and tickling the palate with a feather. The celebration begins with sunset and continues until the following dawn. All the Thlinket who wish to participate in the ceremony, men as well as women, assemble in the house of the shaman, which has been cleaned as much as possible, and begin their singing to the time of a drum. After the shaman has donned his professional apparel and covered his face with a mask he begins to run around the fire burning in the center of the house, twisting and moving his face with violent contortions to the beating of the drum, and until his eyes, which during all this run are always directed to the ceiling, are almost turned in his head; suddenly he stands still, looks upon the upper side of the drum, and utters a loud cry; the song ceases, and all eyes are bent upon him. In these ceremonies consist the whole art of the sorcerer. During the performances the spirits pass in review before him, appearing in various forms. Upon the appearance of each successive spirit the shaman changes his mask—that is, he dons the mask of the spirit with whom he communicates for the moment. Any words he utters during this ceremony are considered as inspirations of the spirit. At the conclusion of the ceremony the assembly is first treated to tobacco and then provided with food. These incantations only take place in the winter, at the time of the new and full moon; and are undertaken chiefly for the purpose of preserving the good will of the spirits toward the inhabitants of the settlement—to obtain their assistance, perhaps, in allaying an epidemic disease and transporting it into some hostile settlement. In addition to these grand occasions incantations are indulged in from time to time for the purpose of ascertaining the cause of sickness or misfortune, etc. The cure of diseases, however, does not depend so much upon the shaman as upon certain other individuals, who are called by the Thlinket *nakuzati* (derived from the word *naku*, which signifies medicine; the term might be translated physician or medicine-man), and in whose power it lies to injure or destroy other people.

The Thlinket name for Russian people, is Kuskekhan (Cossack); Kadiak people, Kaiakwan; Chugach people, Kushek; Kenai people, Tisnakwan; Aleut people, Tiakhakwan; Yakutat people, Tliakhaikhkwan.

Sir James Douglas, governor of the Hudson Bay Company's domain in British Columbia, wrote as follows:

The most enlightened of the Thlinket tribes entertain rational ideas concerning their deities, while others invest them with irreconcilable qualities, such as boundless power, with an extreme simplicity that the most stupid can puzzle and deceive. Probably they have no clear and well-defined ideas on these abstruse points, which are not of a nature to attract their attention, and they merely repeat the tradition as it was received from their fathers, without scrutiny or comment of their own. The Thlinket believe in the existence of a Supreme Being, whose name is Yealth, and that he has a son named Yealth Yay, i. e., the Son of God. They also think that there is a malevolent being called Kosstahooshtekakah. Yealth wears the human form; he made the earth; then man was formed. A faint light afterwards appeared, gradually growing in brightness until the stars were seen. Then the moon was made, and lastly the sun shone forth in all his glory. They think that all men are not descended from the same parent stock, but that Yealth traveled from country to country and made a new man in each, to whom he gave a new language, not through the exertion of miraculous power, but by the mere physical process of changing the position of the internal organs by giving them a good sound twist with his hand. When all things were finished he commanded man to do good and to commit no wickedness, while at the same time he urged them to retaliate for hostile attacks of other people and return injury for injury. He added: "I am now going away, but my eye

will be always upon you. If you live wicked lives you can not come to me, as t good and brave only can live in my place." With these words he left the earth a has not since that time returned to it, and they do not know where he is at prese The Thlinket think that there is a future state of retributive rewards and puni ments. After death the souls of men ascend through successive stages, rising o over another like the stories of a house, to the highest heaven, where they find strong gate guarded by a giant, who knows the name of every spirit that makes appearance there. After proclaiming the name aloud he proceeds to question t spirit regarding its past life, and closes the examination either by receiving it in heaven or driving it back to the inferior stages, where it wanders about comfortl amid yawning gulfs opening before it at every step. The knowledge of these thin has no perceptible effect on their conduct. They steal and cheat and lie whenev they feel an interest in doing so, without any visible apprehension of incurri Yealth's displeasure. They all admit that theft, falsehood, and roguery are crimin but nevertheless have recourse to them without hesitation whenever it suits th purpose.

Polygamy is a general practice among them, and they keenly resent any unsa tioned misconduct of their wives, although they do not scruple to sell their fav for a small consideration. If unmarried women prove frail the partner of th guilt, if discovered, is bound to make reparation to the parents, soothing th wounded honor with handsome presents. A failure to do this would cause t friends of the offending fair one to use force to back their demands and to reven the insult. It must not, however, be supposed that they would be induced to a this part from any sense of reflected shame or from a desire of discouraging vice making a severe example of the vicious, or that the girl herself has any visitings remorse, or that the parents think her a bit the worse for the accident or her ch acter in any way blemished. Such are not their feelings, for the offender is sim regarded as a robber who has committed depredation on their merchandise, th only anxiety being to make the damages exacted as heavy as possible.

Mr. A. Krause, an explorer connected with the Geographical Socie of Bremen, relates an instance of unregenerated superstition th came beneath his observation under the very eyes of the Presbyteri missionary established among the Chilkhat tribe:

During the months of February and March uninterrupted bad weather interfe so seriously with hunting and fishing as to cause great scarcity of food. The peo were alarmed; the two shamans made the most strenuous efforts to propitiate t evil spirits—fasting, dancing, and singing night and day. But all this was in va the weather did not change, and it was necessary to find a reason for this unus misfortune. At last the wise men came to the conclusion that the bad weather w the consequence of the burial of a child's body by the missionary during the prece ing autumn. Huge fires were at once lighted and little images burned to atone f the burial of the child. When this measure, also, met with no success in produci a change of weather the missionary was urged and implored to reveal the buri place of the child that had risen to such unexpected posthumous importance, a when he very unnecessarily refused to comply men and women searched the vicini for many days.

The Thlinket tribes are now divided as follows:

1. The Chilkhaat tribe, of Comptroller Bay, numbering 326.
2. The Yakutat tribe, on the coast from Cape Yaktag to Cape Spe cer, numbering 500.
3. The Chilkhat tribe, living on Lynn Canal, numbering 988.
4. The Hoonyah tribe, on Chichagof Island, numbering 908.
5. The Khootznahoo tribe, on Admiralty Island, numbering 666.
6. The Kehk tribe, on the Kehk Archipelago, numbering 568.
7. The Auk tribe, on the northern part of Admiralty Island a Douglas Island, numbering 640.
8. The Takoo tribe, on Takoo River and Inlet, numbering 269.
9. The Stakhin tribe, on Stakhin River and Etholin Island, numbe ing 317.
10. The Prince of Wales Island tribe, numbering 587.
11. The Tongas tribe, near British boundary, numbering 273.
12. The Sitka tribe, numbering 721.

To these must be added 788 Hyda, closely related to the Thlink ring on Prince of Wales Island.

SENATE DOCUMENT No. 137, PART II, 54TH CONGRESS, 1ST SESSION.

REPORTS

OF

AGENTS, OFFICERS, AND PERSONS, ACTING UNDER THE AUTHORITY OF THE SECRETARY OF THE TREASURY,

IN RELATION TO THE

CONDITION OF SEAL LIFE ON THE ROOKERIES OF THE PRIBILOF ISLANDS,

AND TO

PELAGIC SEALING IN BERING SEA AND THE NORTH PACIFIC OCEAN,

IN

THE YEARS 1893-1895.

IN TWO PARTS.

PART II.

[With maps and illustrations. Results of investigations under the direction of the U. S. Commissioner of Fish and Fisheries.]

A PORTION OF THE PELAGIC SEALING FLEET AT SAND POINT, SHUMAGIN ISLANDS, JUNE, 1893.

NDITION OF SEAL LIFE ON THE ROOKERIES OF THE PRIBILOF ISLANDS, 1893-1895.

By C. H. TOWNSEND.

THE ROOKERIES IN 1893.

LETTER OF TRANSMITTAL.

WASHINGTON, D. C., *February 26, 1894.*

R: I have the honor to inform you that during the summer of 1893 nquiry was conducted on the Pribilof Islands by the United States ı Commission, in compliance with the following clause contained in sundry civil appropriation bill for the fiscal year ending June 30, 4, namely:

d the Commissioner of Fisheries is authorized and required to investigate, under direction of the Secretary of the Treasury, and when so directed to report ally to him regarding the condition of seal life upon the rookeries of the Pri- f Islands.

he report upon this investigation by the naturalist of the Fish Com- sion steamer *Albatross*, Mr. C. H. Townsend, by whom it was con- ted, is herewith respectfully transmitted, in accordance with your ction.

Very respectfully, M. MCDONALD,
Commissioner.

Ion. JOHN G. CARLISLE,
Secretary of the Treasury, Washington, D. C.

INTRODUCTION.

The report herewith submitted is based chiefly upon the observations de on St. Paul and St. George islands between July 11 and August 1893, in conformity with the instructions issued for my guidance, l with the object of determining the conditions of seal life upon the keries of the Pribilof Islands during that period, as compared with corresponding period of the previous year. It is accompanied by 11 rts and 46 photographic views (105 plates),[1] corresponding mainly h those made in 1892 by Mr. J. Stanley-Brown, special Treasury nt, and forming part of his report to the Secretary of the Treasury. ws were obtained from all of the photographic stations occupied by . Stanley-Brown, but as the photographer of the Fish Commission

[1] This set of charts and photographs not transmitted for publication, the accom- ying series for 1895, showing more reduced condition of rookeries, being deemed icient.

steamer *Albatross* likewise secured several excellent negatives of some of the rookeries from other good positions in 1892, I considered it important to duplicate them also, and prints from these negatives of both years have been included among the photographs transmitted. From the appended catalogue of photographs, giving the dates upon which the negatives were made in each year, it will be seen that, with one exception, corresponding negatives were taken on the same or very nearly the same date, foggy weather sometimes interfering with the work, but not sufficiently to allow of any material change in the condition of the rookeries. The exception was at Northeast Point rookery, on St. Paul Island, which the writer was unable to reach until the seals had spread slightly. The difference in perspective observable in the photographs of the two years is owing to the fact that the photographic lens used in 1893 had a somewhat different angle from the one employed by Mr. J. Stanley-Brown.

In comparing the corresponding photographs for the two years, it will be observed that only a few of them show any appreciable differences in the abundance of the seals upon the rookeries to which they relate; but my personal observations clearly demonstrate that a moderate decrease in the number of seals and slight changes in their distribution did occur between the summer of 1892 and that of 1893, as described below, these facts being also more plainly brought out by a comparison of the charts.

In this connection, it seems proper to explain that my acquaintance with the seal rookeries of the Pribilof Islands has not been limited to the investigation of last summer. I first visited these islands during June and September, 1885, at which time the rookeries were in their prime, pelagic sealing, just then beginning, having produced scarcely any effect upon the islands. Compared with the vast herds then observed, the body of seals now on the rookeries appears as a mere remnant. As the naturalist of the steamer *Albatross*, I also made observations on these islands from July 28 to August 10, 1891, and again between June 30 and August 14, 1892, during a part of this latter period having been temporarily attached to the revenue-steamer *Corwin*, then engaged in following the breeding female seals out to their feeding grounds, on which, up to distances of 200 miles from the islands, specimens obtained by means of firearms were found to be in milk and to have undigested food in their stomachs.

Recognizing the importance of designating the photographic stations previously referred to, so that they may be found without delay in future years, I have marked many of those located near permanent rocks or bowlders with their numbers in white lead, and I would respectfully suggest that this work be completed next season. The rookeries at which the stations have been so designated are Great East, Little East, North and Starry Arteel, on St. George Island; and Reef and Zapadnie, on St. Paul Island.

ITINERARY FOR THE SEASON.

Accompanied by Mr. N. B. Miller, photographic assistant, I was landed on St. George Island by the steamer *Albatross* on the morning of July 11, and remained there until the 15th. Zapadnie rookery was photographed on the 13th; North rookery in the morning and Starry Arteel rookery in the afternoon of the 14th; the East and Little East rookeries during the morning of the 15th. The areas covered by the seals at each of these rookeries were plotted upon the charts on the same dates.

We took up our quarters on St. Paul Island on July 16, and on the 17th attempted to photograph the rookery at Northeast Point, but a dense fog prevented. Later in the day, however, we succeeded in photographing Ketavie and Lukannon rookeries. During the 18th, 19th, 20th, and 21st, work was entirely interrupted by fog. The 22d proved clear, and permitted us to obtain plates of Reef rookery in the morning, and of Tolstoi and Zapadnie rookeries in the afternoon. A dense fog continued from the 23d to the 25th inclusive, followed by clear weather on the 26th, when we visited and photographed Northeast Point rookery, the writer remaining there overnight to complete his observations. Polavina rookery was photographed in the afternoon of the 28th, and on the 29th observations were made at Tolstoi and Reef rookeries.

A severe storm prevailed during the 30th, and on the following day I visited that part of Reef rookery lying under the cliffs for the purpose of ascertaining to what extent young pups may have been destroyed by it, but I found the damage slight. In the afternoon I visited Zapadnie rookery, and Mr. Miller returned on board the *Albatross*.

On August 1 photographs were obtained of Lagoon rookery and of Reef rookery from Village Hill. The 2d and 3d were spent in making general observations; from the 4th to the 7th fogs and storms prevailed; on the 8th visits were paid to Lukannon and Ketavie rookeries, and to the rookery on Sea Lion Rock. On the 9th I secured photographs of Northeast Point rookery from Hutchinson Hill, but the weather was rainy or foggy from the 10th to the 13th, permitting only of brief examinations being made of Reef and Ketavie rookeries. August 14 I visited Tolstoi rookery and found several hundred dead seal pups, nine-tenths of which had undoubtedly been killed under the cliffs during the recent storm. Their bodies were lying just along the line of debris left by the highest wash of the waves, and as they were mostly near the commencement of the sand beach, they had evidently been swept from the narrow rookery at the foot of the cliff extending out to the point.

On August 16 I was again transferred to St. George Island, where I spent that and the two following days in reexamining the several rookeries. They were all well covered by the spreading out of the seals which takes place in August, and makes the rookeries look larger than in July. A large proportion of the young pups were also swimming about the adjacent kelp beds off Little East rookery. In the afternoon of the 18th I rejoined the *Albatross*.

CONDITION OF THE ROOKERIES.

ST. PAUL ISLAND.

Northeast Point rookery.—The seals along the eastern side of this rookery were found distributed as in 1892, but undoubtedly much more thinly in the immediate vicinity of the point. Along the western side they were hauled out a little farther back, owing perhaps to the later date at which the observations were made. One or two breaks in the beach line had closed since the preceding season, but no increase can be noted on account of the thinning at the point. It is, therefore, probable that no appreciable change has taken place in the total number of seals on the rookery since 1892. No seals whatever from this rookery have been killed for several seasons. Photographed July 26 and August 9.

Polavina rookery shows a decrease in seals, although the usual area is occupied. It will be noticed in the photographs of the main rookery

(Station G) by the thinly covered spaces. There was also a perceptible thinning among the small bands of breeding seals under the bluffs between Little Polavina and the main rookery. Photographed July 28.

Little Polavina rookery has apparently suffered a slight decrease. The wide hauling ground between this rookery and the main Polavina was practically bare throughout the season, seals being seen generally close to the bluff in the vicinity of the slopes that give access from the beach. Photographed July 28.

Lukannon rookery.—On that part of this rookery where the seals are crowded, chiefly between the low bluff and the beach, there has been no apparent change, but there were certainly fewer seals than in 1892 upon the hill that divides this rookery from Ketavie. The hauling ground had largely changed from the slope at the west end of the rookery to the sand beach just north of it, as shown in the photograph taken at station 26. Photographed July 17.

Ketavie rookery, now the thinnest rookery on the islands, shows a perceptible decrease since 1892. This decrease is distinguishable in some, if not all, of the photographs of the rookery. Photographed July 17.

Reef rookery.—The hauling grounds at this rookery have not been delineated upon the chart for the reason that the bachelors were driven too often to permit of their lying in a perfectly natural condition. This rookery shows a shrinkage under the low bluffs just north of Garbotch (indicated on the chart), but otherwise there has been no change that I can detect. There was a loss of one or two hundred pups from the storm of July 30, 1893. Sea Lion Rock, lying just off this rookery, was visited and found to be very evenly occupied by breeding seals. The central portions of Reef Point, over which the bachelors travel more or less, is becoming distinctively more thickly covered with grass from year to year. Photographed July 22.

Lagoon rookery remains unchanged since 1892. Photographed August 1.

Tolstoi rookery.—The photographs exhibit only a slight change or thinning out of the seals at this place, which is shown more distinctly on the chart. There was a loss of perhaps 500 young pups from the storm of July 30, 1893. They were swept from the narrow beach below the cliff and deposited in a windrow at high-water mark near the commencement of the sand beach to the northward. There was no other loss of pups here, with the exception of the scattered loss from natural causes. Photographed July 22.

Lower Zapadnie rookery showed no change in number of seals, with the exception of one or two breaks along the shingle beach. Photographed July 22.

Upper Zapadnie rookery is the most difficult seal area on the Pribilof Islands to examine, and as the weather did not permit the use of a boat, the larger bands of seals near the beach could not be approached without disturbing the tract of seals in their rear. There has, however, been a decrease of seal life here, which is, I think, noticeable on the photographs. Photographed July 22.

ST. GEORGE ISLAND.

East rookery shows very little change since last season, except in the distribution of bachelors, the main body of which had hauled out north of the pond instead of south of it as in 1892. Owing to the unfavorable points from which this rookery has to be photographed to avoid

disturbing the herd, the change that has taken place here is scarcely perceptible in the photographs. Although the same area is occupied by breeding seals as in 1892, and is so indicated on the chart, the change is there expressed by the words "Thinned out slightly since 1892." Photographed July 15.

Little East rookery presents the same appearance as in 1892. I am not able to detect any change, and the photographs taken there do not seem to indicate any. Photographed July 15.

North rookery.—The seals are disposed on this rookery much as in 1892, but a slight decrease is perceptible, which is also shown by the photograph taken at station 5. Photographed July 14.

Starry Arteel rookery.—The scattered fringe of seals along the main rookery visible in 1892 now seems to have been absorbed into the main body of breeding seals. The chart will be found to indicate a recedence toward the bluff at two or three points. Bachelor seals seem also to be less numerous and were not found distributed so far back as usual, the higher positions on the hill being mostly unoccupied this year. Photographed July 14.

Zapadnie rookery shows more shrinkage than any other of the St. George Island rookeries. The decrease is perceptible in the photograph taken at station 6. The main breeding ground on the hill slope by the bluff is decidedly scattered as compared with 1892, and there are two breaks in the narrow breeding ground along the beach. The hauling ground of bachelors is much more thinly covered, and seals were not found as far back as in 1892. Photographed July 13.

CONCLUSIONS AS TO CONDITION OF ROOKERIES.

Taking all the rookeries of the Pribilof Islands into consideration, it may be safely asserted that the total number of seals upon them has decreased to an appreciable extent since the summer of 1892. The annual increase of young seals has not, therefore, been quite sufficient to offset the loss caused by the continuance of pelagic sealing in the North Pacific Ocean. It is evident, however, that the closing of Bering Sea to sealing vessels during the period of the modus vivendi has had a most salutary effect upon the rookeries of the Pribilof Islands, and that their present condition, so nearly stationary as regards the number of seals since this regulation came in force, is distinctly traceable to the protection thus afforded.

ADDITIONAL PROTECTION FOR THE ROOKERIES.

The erection of watchhouses at all the rookeries and their connection with the villages by telephones and roads has been commenced, and the continuance of this work can not be too strongly urged. The organization of the natives into regular watchmen is not only desirable for the systematic care of the rookeries, but would be a most effective system of discipline for them, as a class of people living most of the time in enforced idleness.

A light mounted field piece, such as a Hotchkiss rapid-firing gun, would be a valuable aid in the work of protection. Sealing vessels have at various times approached the islands for the purpose of sealing or raiding the rookeries, and a thorough protection can not be assured during the absence of Government vessels, which must sometimes happen.

OPENING OF PART OF BERING SEA TO PELAGIC SEALING.

By the provisions of the recent treaty of arbitration, pelagic sealing will hereafter be permitted in Bering Sea after August 1 of each year outside of a radius of 60 miles from the Pribilof Islands. Notwithstanding that the use of firearms will be prohibited, the opportunity afforded by this privilege is likely to produce a very serious effect upon the seal herd belonging to the several rookeries whenever the vessels find continuous good weather. Seals, when in the water, can readily be killed by means of spears, and they are regularly taken in this manner by most of the Indian seal hunters of the Northwest Coast. Many sailing vessels have been accustomed to carry Indian spear hunters with their canoes in preference to the white hunters, who use guns and boats, and we may expect to see full advantage taken of the former method in the free waters of Bering Sea. The open season for seals coming, as it does, at the close of the sea-otter season, will also make available the entire force of Alaskan spear-throwing hunters, who will be the more eager to take advantage of the new privilege, in view of the recent restrictions placed upon otter hunting and the present scarcity of otters. The apparatus employed in the latter fishery is likewise largely adapted to the pursuit of seals. After the month of August, however, the weather soon becomes unsettled and stormy, thus somewhat limiting the period when pelagic sealing can safely be carried on.

Observations made upon the distribution of seals in Bering Sea between July 28 and August 13, 1892, by the steamer *Corwin*, showed conclusively that the nursing seals travel distances of at least 200 miles from the Pribilof Islands in search of food, and consequently that the closed area about those islands, having a radius of only 60 miles, affords them only a very partial protection. The effect of killing large numbers of these females, which must certainly take place, means also the destruction of their pups on shore through starvation and the more rapid thinning out of the herds upon the rookeries than has hitherto occurred. The complete protection of the fur seal in Bering Sea, together with such restrictions upon its killing in the North Pacific Ocean as have been provided by the treaty of arbitration, would no doubt permit a steady increase upon the rookeries where it breeds, but its pursuit in any manner within part of the area it occupies as a feeding ground during the breeding season may be expected to have a disastrous effect upon the breeding rookeries of the Pribilof Islands.

List of the maps showing the outlines of the rookeries on the Pribilof Islands, 1893.[1]

ST. PAUL ISLAND.

Northeast Point rookery	Chart A
Polavina rookery	Chart B
Ketavie and Lukannon rookeries	Chart C
Reef and Garbotch rookeries	Chart D
Tolstoi and Lagoon rookeries	Chart E
Zapadnie and English Bay rookeries	Charts F and G

ST. GEORGE ISLAND.

Starry Arteel rookery	Chart H
North rookery	Chart I
East and Little East rookeries	Chart J
Zapadnie rookery	Chart K

[1] This set of maps not transmitted for publication, the accompanying set for 1895, showing more reduced area of rookeries, being deemed sufficient.

he photographs of the seal rookeries on the Pribilof Islands taken during July and t, 1893, by N. B. Miller and C. H. Townsend, showing the dates on which they ade, and also the corresponding views for 1892. a

ST. PAUL ISLAND.

Rookery.	Station.	Number of plates in each view.	Dates on which taken.	
			1893.	1892.
Point	1	1	July 26	July 17.
	2 (north)	1	....do	Do.
	2 (south)	1	....do	Do.
	3	3	....do	Do.
	4	1	....do	Do.
	5	5	....do	Do.
	5	5	Aug. 9	Aug. 6.
	6	2	July 26	July 20.
	25	1	....do	Do.
	21	2	July 28	Do.
	22	2	....do	Do.
	23	2	....do	Do.
	24 (near)	1	....do	Do.
	G	5	....do	July 21.
	12 *b*	2	July 17	July 19.
	26 *b*	2	....do	July 14.
	13	3	....do	July 19.
	14	1	....do	Do.
	14½	5	....do	Do.
	15	2	....do	Do.
	16	3	July 22	Do.
	17	5	....do	Do.
	18	2	....do	Do.
	19	2	....do	Do.
	20	2	....do	July 20.
	Grass area	1	....do	No date.
	Village Hill	3	Aug. 1	July 18.
	27	3	....do	July 22.
	11	3	July 22	July 19.
	F *b*	3	....do	July 20.
padnie	7	2	....do	July 18.
	8	2	....do	Do.
	8a	2	....do	Do.
padnie	9	2	....do	Do.
	10	2	....do	Do.

ST. GEORGE ISLAND.

	9 (near)	2	July 15	July 15.
	A	2	....do	July 27.
st	B *b*	2	....do	July 28.
	1	1	July 14	July 14.
	2	(c)	....do	Do.
	3	1	....do	Do.
	5	2	....do	Do.
teel	E *b*	2	....do	July 23.
	D	5	July 13	Do.
	C	2	....do	Do.

et of photographs not transmitted for publication, the accompanying series for 1895, showing iced condition of rookeries, being deemed sufficient.
d States Fish Commission station.
gative lost.

THE ROOKERIES IN 1894.

LETTER OF TRANSMITTAL.

UNITED STATES COMMISSION OF FISH AND FISHERIES,
Washington, D. C., February 23, 1895.

SIR: In accordance with your verbal request, I have the honor to transmit herewith a report upon the condition of the seal rookeries, Pribilof Islands, Alaska, during the season of 1894, the same being based upon observations made by one of the assistants of this Commission, Mr. O. H. Townsend, in compliance with the requirements of the act approved March 3, 1893.

Very respectfully, HERBERT A. GILL,
Acting Commissioner.

The SECRETARY OF THE TREASURY,
Washington, D. C.

INTRODUCTION.

The report herewith submitted is based upon observations made on the Pribilof Islands between July 12 and August 1, and again between September 9 and 13, 1894. It is accompanied by 11 charts and 38 photographic views, the former showing the outlines of the rookeries, the latter illustrating the condition of the most characteristic portions of each rookery, at the time of making the observations. The positions from which the photographs were made are identical with those from which similar views were taken in 1892 and 1893, while the dates of both charts and photographs correspond as closely with those of preceding seasons as the conditions of weather permitted. This report should be considered in connection with those previously submitted, as being one of the series intended to present the yearly changes in the conditions of the rookeries.

The steamer *Albatross* arrived at St. George Island on the morning of July 8, 1894, and remained there at anchor until the 12th without being able to effect a landing on account of stormy weather. Not wishing to detain the ship longer, it was decided to begin the work upon the rookeries of St. Paul Island, where the opportunities for landing are better, and, accompanied by Mr. N. B. Miller, laboratory assistant of the *Albatross*, and Mr. J. Stanley-Brown, I landed at Northeast Point on the evening of the 12th, the *Albatross* sailing for Unalaska at once.

July 13 was spent in examining and photographing Northeast Point and Polavina rookeries, and we reached the village by wagon in the evening, our baggage having been taken there from the Point on the U. S. S. *Ranger*. On the 14th we examined and photographed Zapadnie, Upper Zapadnie, and Tolstoi rookeries. On the 15th, clear weather continuing, we examined and photographed Reef, Ketavie, and Lukannon rookeries, thus completing the necessary photographic work for this island in less time than we had ever been able to do it before. I made a further examination of the rookeries of Zapadnie, Upper Zapadnie,

and Tolstoi on the 16th, and plotted upon the base maps the distribution of seals at Tolstoi and Lagoon rookeries on the 17th. Reef, Polavina, Ketavie, and Lukannon were revisited on the 18th for chart data.

Leaving Mr. Miller to develop the plates exposed on St. Paul Island, I sailed on the morning of the 19th for St. George Island on the U. S. S. *Alert*, and succeeded in landing the same evening. On the 20th I collected the necessary chart data for East and Little East rookeries, St. George Island. From the 18th to the 21st, inclusive, the weather was too stormy for photographic work, and it was not until the 22d that I got the first photographs on St. George Island, those of North rookery. The 23d proved stormy, but with better weather on the 24th I secured photographs of East and Little East rookeries. Chart data for North rookery were secured the same day, and I duplicated some photographs of North rookery taken in 1891. From the 25th to the 27th it was too stormy for photographic work, but I collected chart data for Zapadnie and Starry Arteel rookeries on the 27th. On the 28th I photographed the latter rookery.

On the 29th an opportunity was afforded for returning to St. Paul Island on the U. S. S. *Adams*, and, as the most important rookeries are located on that island, I returned without having secured photographs of Zapadnie rookery. I immediately recommenced work on the rookeries of St. Paul Island, spending the 30th at Northeast Point and Polavina rookeries, the 31st at Reef rookery, and August 1 at Lukannon and Ketavie rookeries.

The *Albatross* returned to St. Paul Island on the evening of August 1, and thinking that my time could then be spent more profitably cruising among the fleet of pelagic sealers and observing their work than by remaining longer on the islands, I went on board that evening accompanied by Mr. Miller.

My time while at the islands was spent on the rookeries, whether the weather was clear or stormy, Mr. Miller attending to the development of the plates, thus giving me ample opportunity for going over most of the rookeries two or three times. Satisfactory photographs were taken of all rookeries except Zapadnie, on St. George Island. Station 27 (Lagoon rookery) and the one on Village Hill (Reef rookery) were abandoned, as showing nothing on account of distance. The dates for photographing the rookeries of St. George Island were changed to those of St. Paul Island and vice versa, this change being rendered necessary, as explained above, by the uncertainty of the landings at the former island. St. Paul, moreover, being the more important island, is most deserving of attention, and, in the future, I would recommend the completion of the work on that island first.

Several of the photographic stations on the rookeries were marked with their numbers or letters in white lead, on the nearest permanent bowlders. The stations now marked are as follows:

St. Paul Island.—Reef, Ketavie, Lukannon, Lagoon, Zapadnie, and Upper Zapadnie (Stations Nos. 12, 26, 14, 14½, 15, 17, 18, 19, 20, 27, 7, 8, 8ª, 9, 10).

St. George Island.—East, Little East, North, and Starry Arteel (9, A, B, 1, 2, 3, 5, E).

For most of the remaining unmarked stations heavy stakes will have to be driven into the sand, few permanent bowlders being available.

The photograph of the grass area on Reef rookery was not duplicated owing to bad weather, which is to be regretted, as it would have shown how very rapidly this portion of the Reef is becoming grass-grown.

CONDITION OF THE ROOKERIES.

ST. PAUL ISLAND.

Northeast Point rookery.—Although a comparison of the charts and photographs of this rookery for 1894 with those made in 1893 may indicate a slight diminution of seals, I am not prepared to state that this is the case. Owing to unfavorable weather the observations of last year were made later than they should have been, after the spreading of the rookeries had commenced. The data for the present year having been secured earlier, the difference in the records should be accounted for accordingly. I note, however, an additional break in the belt of breeding seals in the immediate vicinity of the Point.

Polavina rookery.—Although the photographs from Station G show very little change in position, the rookery when viewed from other points appeared to have a well-marked break in the center, which will be found indicated on the chart. Good weather having followed very stormy weather, the seals had taken to the water to a noticeable degree when the photograph was made. I think that no actual decrease can be recorded.

Little Polavina rookery apparently exhibits no diminution since last year and very little change in position.

Lukannon rookery.—No perceptible change in the number or position of breeding seals was noticed here.

Ketavie rookery.—This small and gradually diminishing rookery, I believe, shows a shrinkage since last season, but not a very marked one.

Reef rookery.—No decrease is apparent. The change in distribution is slight.

Lagoon rookery remains unchanged since last year.

Tolstoi rookery.—The seals here are perhaps a little more concentrated at the north end of the rookery; but otherwise there is no change.

Zapadnie rookery.—The hill portion of this rookery is unchanged, but the very thin portion extending about a mile along the shingle beach exhibits several breaks never before noticeable.

While the fur seal, naturally so gregarious, returns year after year under normal conditions to its accustomed breeding grounds, there are indications that it is less at home upon tracts which are becoming thin, and is inclined to concentrate upon adjacent breeding tracts more thickly covered with seals. This appears to be the case with the above-mentioned Ketavie rookery, and in the case of Zapadnie to be borne out by the appearance of an increase upon the adjoining rookery of Upper Zapadnie. This scattered beach rookery is illustrated by one of the photographs.

Upper Zapadnie rookery.—An increase since last season being indicated here, I went over the ground very carefully, and, although it may not be apparent in the photographs, the chart will be found to show changes which I believe mean a slight increase.

ST. GEORGE ISLAND.

East rookery.—It is possible that this rookery has suffered a slight shrinkage since last season, but I found it difficult to decide that such was the case.

Little East rookery remains unchanged.

North rookery.—Slight and unimportant changes in distribution were observed, but no apparent decrease.

Starry Arteel rookery remains unchanged.

Zapadnie rookery.—There is a widening of the break along the beach portion of the rookery, but no decrease was noticeable.

CONCLUSIONS AS TO CONDITION OF ROOKERIES.

At the time of my inspection in July, 1894, the seal rookeries of the Pribilof Islands, taken as a whole, were found to be in nearly the same condition as in 1893. While the number of seals has slowly been diminishing, the decrease having continued even during the period when Bering Sea was closed to pelagic sealing, no decrease in general was noticeable this year up to the date of my departure from the islands on August 1. This is probably traceable to the cessation of sealing in the North Pacific Ocean on May 1, 1894, or soon thereafter. During the months of May and June the migrating seals become massed south of the Alaska Peninsula as they move toward the passes through which they enter Bering Sea, and a very considerable portion of the catch has been taken annually in that region by the fleet of pelagic sealers. By reason of the cessation of pelagic sealing on May 1 of the present year, the seal herd was spared the excessive killing from which it has usually suffered there in the past, and the rookeries, in consequence, presented approximately the same appearance as at the time of my last examination. This was contrary to previous experience, as an annual decrease had always been observed during the several preceding years.

Circumstances affecting seriously the welfare of the seal herd arose, however, before the close of the present season, necessitating a second and later examination of the rookeries, which revealed an alarming change in their condition. By the award of the Paris Tribunal of Arbitration, Bering Sea, with the exception of a zone of 60 miles around the Pribilof Islands, was opened up to pelagic sealers after August 1, with the result of causing great destruction to the seal herd. The killing of over 31,000 seals belonging to these islands and consisting chiefly of nursing females, was followed, necessarily, by the loss, through starvation, of thousands of young seals upon the rookeries.

LOSS OF YOUNG SEALS IN SEPTEMBER AS A RESULT OF PELAGIC SEALING DURING AUGUST.

After finishing the work of inspection upon the Pribilof Islands on August 1, I cruised with the *Albatross* among the fleet of pelagic sealers until September 9, when I landed again upon the islands to investigate the loss of young seals, which was reported as becoming serious.

Thirty-eight vessels known to us, hunting just outside of the prohibited zone, took 31,542 seals during the months of August and September, these consisting for the most part of nursing females, which resulted in the additional loss, by starvation, of the young seals thus left without means of nourishment. Although sealing began on August 1, no dead pups were noticed on the rookeries until about September 1, after which time they were found in increasing numbers, and at the date of my departure from the islands, September 13, careful examination had disclosed a loss of at least 9,000 pup seals, with a prospective loss of nearly as many more found in an emaciated and exhausted condition. With the assistance of Mr. Miller, the resident agents of the Treasury, and Mr. H. C. Chichester, I counted 2,349 pups upon the following rookeries:

ST. GEORGE ISLAND.

North rookery, September 9 and 10, Townsend and Miller (whole rookery)	405
Starry Arteel, September 9, Townsend (whole rookery)	305
East rookery, September 10, Townsend and Agent Ziebach (hill slope only)	130
Little East, September 9, Miller (whole rookery)	140
Total counted	980

Zapadnie rookery and beach portion of East rookery not counted.

ST. PAUL ISLAND.

Garbotch (or Reef) rookery, September 10 and 12, Townsend and Chichester (west side only)	492	
Lagoon, September 12, Townsend, Chichester, and Treasury Agent Judge (whole rookery)	105	
Tolstoi, September 12, Townsend, Chichester, and Treasury Agent Judge (hill and nearer beach)	497	
Lower Zapadnie, September 12, Townsend, Chichester, and Treasury Agent Judge (whole rookery)	275	
Total counted		1,369
Total on both islands		2,349

On other rookeries showing a similar condition I compared the uncounted area with that already counted, estimating the total loss as follows:

Upper Zapadnie		350
Tolstoi (uncounted portion)		200
Reef		1,400
Lukannon and Ketavie		350
Polavina		550
Little Polavina		100
Northeast Point (greatest of all rookeries)		3,000
Total St. Paul Island, estimate for uncounted area		5,950
East Rookery (St. George, uncounted portion)	200	
Zapandie (St. George)	450	
Total St. George Island, estimate for uncounted area		650
Total uncounted, both islands		6,600
Total counted, both islands		2,349
Total loss, both islands		8,949

Persons familiar with the comparative area of the rookeries will see how low these estimates are.

The bodies counted were those of pups that had died within ten days or two weeks and were fresh, although greatly emaciated. No rotten bodies, such as might have died during the breeding season from injuries received on the rookeries, were included, although a limited number of such were seen.

The attempt to count weak, emaciated pups was given up, owing to the difficulty of separating any but the very weakest from the more active and strong pups. Large numbers of starving pups were observed, and they were, to the best of my belief, nearly as numerous as the dead ones. In counting it was found necessary to pass over the rookeries systematically, which resulted in clearing the section counted, and driving most of the seals into the water or farther inland, according to the direction from which they were approached. All adults and active pups moved off in a body, followed by the less active and starving pups, there being occasional weak, tottering pups unable to do so. These fell over frequently and seldom moved far. They were thin and gaunt, and clearly starving. The majority of the pups were strong and active and cows were observed everywhere suckling them. All dead pups were confined to the regular breeding grounds and were evenly distributed, indicating that they died near where their mothers had left them.

Young seals are very fat and seem to endure a month or more of starvation before they succumb. I have, from year to year, observed

STARVED SEAL PUPS, SAINT PAUL ISLAND, SEPTEMBER. 1894.

occasional young seals brought into the villages on the Pribilof Islands to be raised as pets, but in no case have they fed, except when milk was forced into them, and even then they did not live more than three weeks. Young seals continue to live entirely upon their mother's milk until late in the fall. During my examination of the rookeries, from September 9 to 13, I found the females suckling their young as commonly as they are observed doing a month earlier in the season. One handsome albino pup, as large as any of the others, I secured as a natural history specimen. It was coffee-colored, with white flippers. It was left upon a high rock, and finding, upon my return in the evening, that two quarts of thick milk had run from its mouth, I photographed it. It weighed, after losing its milk, 18¾ pounds.

I dissected several dead pups, finding in all cases an almost complete disappearance of fat from under the skin and an entire absence of food of any kind in the stomach. Accompanying photographs of dead pups illustrate, in a measure, the condition in which they were found, but most of the photographs are unsatisfactory.

List of the charts showing the outlines of the rookeries on the Pribilof Islands, July, 1894.[1]

ST. PAUL ISLAND.

Northeast Point rookery ..... July 13, Chart A
Polavina rookery ..... July 18, Chart B
Ketavie and Lukannon rookeries ..... July 15, Chart C
Reef and Garbotch rookeries ..... July 15, Chart D
Tolstoi and Lagoon rookeries ..... July 17, Chart E
Zapadnie and English Bay rookeries ..... July 14, Charts F and G

ST. GEORGE ISLAND.

Starry Arteel rookery ..... July 27, Chart H
North rookery ..... July 24, Chart I
East and Little East rookeries ..... July 20, Chart J
Zapadnie rookery ..... July 27, Chart K

List of the photographs of the seal rookeries on the Pribilof Islands, taken in July, 1894, by N. B. Miller and C. H. Townsend, showing the dates on which they were made. [a]

ST. PAUL ISLAND.

Rookery.	Station.	Number of plates in each view.	Date on which taken.	Rookery.	Station.	Number of plates in each view.	Date on which taken.
Northeast Point	1	1	July 13	Ketavie	14	1	July 15
	2 (north)	1	Do.		13	3	Do.
	2 (south)	1	Do.		14½	4	Do.
	3	3	Do.		15	2	Do.
	4	1	Do.	Reef	16	3	Do.
	5	5	Do.		17	5	Do.
	6	2	Do.		19	2	Do.
	25	1	Do.		20	2	Do.
Polavina	21	2	Do.	Tolstoi	11	3	July 14
	22	2	Do.		F	2	Do.
	23	2	Do.	Lower Zapadnie	7	2	Do.
	24	1	Do.		8	2	Do.
	G	6	July 26		8*	2	Do.
Lukannon	12	3	July 15	Upper Zapadnie	9	2	Do.
	26	2	Do.		10	3	Do.

[a] This set of photographs not transmitted for publication, the accompanying series for 1895, showing more reduced condition of rookeries, being deemed sufficient.

[1] This set of maps not transmitted for publication, the accompanying set for 1895, showing more reduced area of rookeries, being deemed sufficient.

List of the photographs of the seal rookeries on the Pribilof Islands, etc.—Continued.

ST. GEORGE ISLAND.

Rookery.	Station.	Number of plates in each view.	Date on which taken.	Rookery.	Station.	Number of plates in each view.	Date on which taken.
East	9	2	July 24	North	2	1	July 24
	A	2	Do.		3	1	Do.
Little East	B	2	Do.		5	2	Do.
North	1	1	Do.	Starry Arteel	E	2	July 28

OBSERVATIONS RELATIVE TO PELAGIC SEALING IN BERING SEA DURING THE SEASON OF 1894.

INTRODUCTION.

The report herewith presented includes the results of observations made at sea between August 1 and September 20, 1894, together with certain data subsequently obtained at Victoria, Port Townsend, Seattle, and San Francisco. The work at sea was carried on in connection with the cruise of the United States Fish Commission steamer *Albatross*, at that time detailed as one of the vessels of the Bering Sea patrol fleet. The cruising ground assigned to the *Albatross* was to the westward and southward of the islands, chiefly outside of the protected zone, but trips were also made to the northwest and southeast of the islands. During the cruise sealing vessels were boarded whenever met with, and I accompanied the boarding officer at all times, for the purpose of obtaining information in connection with their operations from day to day. In addition to the data secured by the boarding officer, I copied from the sealer's log books all notes regarding the positions where seals were taken, and examined all fresh skins not yet consigned to the kenches.

The record of positions where seals were taken by Canadian vessels is incomplete, as most of those vessels continued sealing for some time after being boarded, while others were not met with. Similar data obtained from American vessels at sea were finally secured in full after their arrival at home ports.

Sealers were constantly questioned concerning sealing matters, and statements made by them will be found in the following pages.

I have, under a separate heading, called attention to the effectiveness with which pelagic sealing was carried on in Bering Sea by the 38 vessels engaged in it. It will be seen, after proper consideration of this point, how very destructive to the life of this industry the presence of a larger fleet would be. In my report for last year I pointed out the loss of young seals that might be looked for upon the islands if a large number of female seals were to be taken in Bering Sea during the breeding season. This has been borne out by the experience of the past season, 20,000 being the lowest estimate that can be made for dead pups, and we may confidently expect to see a still greater loss of this kind next season if sealing is continued on the feeding grounds. The results of the season's pelagic catch in Bering Sea were already apparent on the rookeries when I went over them from September 9 to 13, and will be still more so when the annual examination is made next July. The rookeries in their present condition can not lose 50,000 seals

INDIAN SEALING CANOE. SHOWING METHOD OF THROWING SPEAR.

in Bering Sea, in addition to the North Pacific catch, without such a loss being perceptible.

As stated under the heading referring to the condition of the rookeries in 1894, the beneficial results of the cessation of sealing in May and June were apparent on the seal islands in July. This would seem to indicate that a respite of two months, in addition to such protection as was afforded by the modus vivendi, would be sufficient to keep the seal herd in its present condition. We may also infer that any additional restrictions that might be placed on sealing in the North Pacific would count as a gain, and permit an increase in the herd in proportion to the protection afforded, provided, of course, that there be no increase in the size of the sealing fleet.

Accompanying this report are a series of photographs illustrating some of the features of sealing with spears, and also a chart showing the distribution of the seal herd on its feeding grounds in Bering Sea.

DATA OBTAINED FROM THE SEALING FLEET.

The following tables[1] contain the daily sealing data of the pelagic sealing fleet in Bering Sea during August and September, 1894, giving the catch of each vessel, sex of seals taken, latitude and longitude of each day's operations, with more or less data on the crew, boats, and hunters of each vessel. With exception of one vessel not yet returned it is complete for the American portion of the sealing fleet. The data for Canadian vessels are given for such vessels as I was able to board in Bering Sea. The remainder having turned in their log books to the collector at Victoria I could not complete the work when I went there.

A record of the daily operations of the pelagic sealing fleet, even in part, yields new and valuable information. It shows the number of males and females at different distances from the Pribilof Islands, the portions of Bering Sea most frequented by the seals, the exact number of days during the season when the weather permitted of seals being taken;[2] it is data upon which to base an accurate map of seal distribution during the breeding season, etc. These records, kept by the sealers in accordance with the regulations put in force by the Paris award, constitute the first accurate information of the kind and supply data respecting the seals at sea, of which we have long been in need.

The daily records of the sealers should have been collected by the custom-houses to which they reported, but it was neglected, and I have had to search for them, as some of the discharged masters carried their log books away with them, making it very difficult to collect the information.

The catch of the Canadian portion of the fleet in Bering Sea appears to be 26,341. By questioning many of the sealers at Victoria I ascertained it to be 26,312, which tallies very closely with the figures given in the report of the collector at Victoria, 26,341. This number, plus the American catch of 5,201, makes the Bering Sea pelagic catch of 1894 31,542, unless there were vessels sealing in Bering Sea of which we have no knowledge, which is very doubtful.

There were 27 Canadian vessels in Bering Sea and only 11 American vessels. The Canadian vessels hunting with Indian spearmen from Vancouver and Queen Charlotte islands were very successful, while the

[1] The tables referred to will be found appended to the report for 1895.
[2] This is partly worked out in the tables following for August and September.

American vessels, with the exception of two or three, made poor catches. Sealing with spears in Bering Sea has therefore been profitable to Canadian rather than American vessels.

In respect to the claim that Bering Sea weather is sufficiently unfavorable for sealing to afford the seals protection from excessive spear hunting, the accompanying tables, although based on incomplete data, show that there was only one day during the season, from August 1 to September 21, when seals were not taken, and it is possible that when all the data are accessible through exchange with Great Britain it will be shown that seals were taken daily throughout the season.

The same tables indicate that storms in Bering Sea are local in their nature, vessels to the westward of the Pribilof Islands having been hove-to, while others to the southward were making good catches.

COMMENT ON THE PROPORTIONS OF THE SEXES REPORTED BY THE SEALING FLEET.

I have compared the proportions of the sexes of seals taken in Bering Sea by the Canadian and American fleets, and having considered both in the light of depositions now in the possession of the Treasury Department, made by London furriers, I can not admit that the proportion of male and female seals reported by the vessels is correct. American sealers reported a greater proportion of females, and in no case reported more males than females, as some of the masters of Canadian vessels have done. The latter were sealing very close to vessels reporting from two to five times as many females as males. When I questioned the masters of the schooners *Favorite*, *Walter Rich*, *Henrietta*, etc., as to their alleged greater number of males, their explanations to me were that their seals were skinned in the canoes by the Indians, and the pelts thrown on deck as they returned after dark, and that under the circumstances they had no time to bother with inspecting skins minutely as to sex. Such returns are unreliable, and there is no doubt about the proportion of female seals taken by the Canadian fleet being much greater than reported. This is borne out by the sworn statements, now in possession of the Treasury Department, of Messrs. Martin and Teichmann, of London, as to the sex of seal skins derived from the pelagic catch of 1894 in Bering Sea and the North Pacific Ocean. These gentlemen personally inspected some of the largest consignments of seal skins taken in 1894 and found 85 to 90 per cent of them to be females.

Mr. Lupp, of San Francisco, a seal hunter of several years' experience, informs me that the catch of 1,400 seals made by the vessel he sailed with on the Japan Coast in 1892 consisted almost entirely of females with young, there being less than 50 males in the entire lot, and that of a catch of 1,100 seals taken by his vessel, the *Louis Olsen*, in 1894, in the same region, all were females but about one dozen.

Mr. John Fanning, who cruised as a hunter with the schooners *Denny* and *Retriever*, informs me that nine out of every ten seals taken on the Japan Coast by him were females, and that when sealing off the Commander Islands eight out of every ten were females in milk. I questioned other sealers on this point, eliciting similar statements.

In view of the above statements of London furriers, the statements of masters of Canadian vessels as to the uncertainty of their method of ascertaining the sex of each day's catch, and the statements of Japan Coast sealers as to the great proportion of females in pelagic catches, to say nothing of our knowledge of the subject from results apparent

A PORTION OF THE CANADIAN SEALING FLEET, VICTORIA HARBOR, 1894.

on the Pribilof Islands, the returns of the Canadian sealers operating in Bering Sea may well be questioned. They report but 14,636 females in a catch of 26,341, while the American fleet reports 3,813 females in a catch of 5,201—a much greater proportion. Not one American sealer reported more males than females. One of them, the *Deeahks*—captain and all hands being Indians—reported only 155 males in a catch of 1,023, while seven Canadian sealers reported more males than females. One Canadian sealer, the master of the *Borealis*, apparently without guile, has come very near the truth in reporting only 90 males in a catch of 1,059 seals.

I ascertained upon inquiry at the custom-houses at Port Townsend and San Francisco that the catches of but three of the American sealers from Bering Sea had been examined by experts in furs to determine the proportions of the sexes represented. These were the *Therese*, *Jane Grey*, and *Rose Sparks*. The catch of the *Louis Olsen*, an American sealer, landed at Victoria, was examined by my colleague, Mr. A. B. Alexander, of the United States Fish Commission.

None of the others, either American or Canadian, were subjected to such an examination, but their returns, as a whole, are still capable of correction in the light of depositions by the London furriers, who received and inspected the bulk of the pelagic catch.

The examination of the catches of the four vessels named above shows the proportion of females to range from two-thirds to four-fifths of their catch. As to the catches of the *Ella Johnson*, *Deeahks*, *Stella Erland*, *Ida Etta*, *Columbia*, and *Allie Algar*, that of the *Deeahks* has evidently been faithfully recorded, while the others have at least placed themselves on the safe side. Of the Canadian fleet, the *Labrador*, *Aurora*, *Mary Ellen*, *Walter Earle*, *San Jose*, *Beatrice*, etc., reporting from two-thirds to three-fourths females, are also on the safe side, while the *Borealis* stands unique in reporting almost an entire catch of females (only 90 males in a catch of 1,149).

As to the *Sapphire*, *Ainoko*, *Walter Rich*, *Favorite*, *Henrietta*, etc., the less said the better. They are convicted of inaccuracy by their own admissions. If there was intention to deceive as to the proportion of the sexes in Bering Sea, discrepancies should have been guarded against, as comparisons with the returns made by the *Borealis*, *Deeahks*, *Walter Earle*, etc., are damaging.

The proportion of females in the Canadian catch has not been represented in good faith, as it does not correspond with what the fur trade know to be the actual conditions; with what nine sealers out of ten say about the composition of pelagic catches in general, and with what we known by count and observation to have been the loss of young seals by starvation.

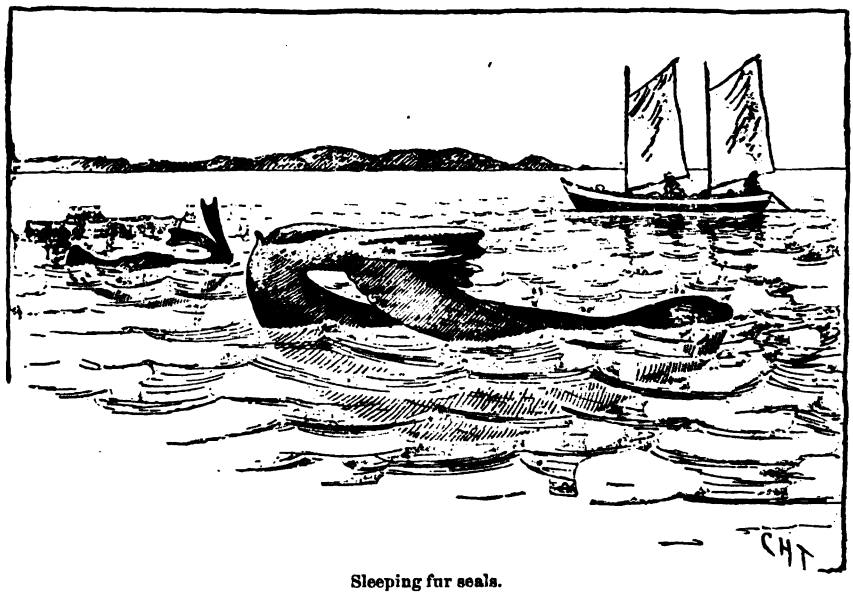
ABSENCE OF FEMALES FROM ROOKERIES AFTER AUGUST FIRST, AND EASE WITH WHICH THEY MAY BE TAKEN AT SEA.

On August 1, 1894, just before leaving the Pribilofs on an extended cruise on the pelagic sealing grounds, I examined two small rookeries very carefully (Ketavie and Lukannon), for the purpose of ascertaining the proportion of females upon the breeding grounds. On that date I estimated that about 80 per cent of the seals present consisted of males and young, clearly indicating the great extent to which the females were feeding at sea.

The cruising ground of the *Albatross* for the first week in August was far to the northwest of the islands, where very few seals were seen. On the 7th, just outside the protected zone and to the northwest of St.

Paul, we found seals in abundance. The sea being perfectly smooth, I went out in the dingey a few hundred yards from the ship and photographed several seals, showing their positions when asleep and awake. The distance at which we were able to photograph them was from 30 to 40 feet. In the three-quarters of an hour 26 seals were counted. Most of them were sleeping, and all were females, judging by size alone. The photographs show the customary attitudes. Seals sleeping at sea have little more than the nose, lower jaw, and hind flippers above water, the fore flippers being raised occasionally as the animal scratches itself or rolls slowly from side to side. The back is always down and deeply submerged.

As a rule sealing with spears is practicable only when seals are found asleep, the ordinary spearing distance being 30 to 35 feet. To the fur seal's unfortunate habit of sleeping much at sea is chiefly traceable its diminution, for it is at such times most readily approached by the pelagic sealer and taken with guns or spears. The number of seals to be observed asleep in Bering Sea is greater than elsewhere, the migration



Sleeping fur seals.

being over and the animals feeding at their natural habitat. It is a well-known fact of natural history that breeding male seals do not leave the rookeries during the breeding season, and that young pups can not leave the immediate vicinity of the islands until they depart on their first migration southward.

From the almost constant presence on the hauling grounds of the nonbreeding males, it is also well established that they do not leave the islands to any great extent. The females alone constitute a class that feed at long distances from the islands during the breeding season. Their excursions in search of food extend over 200 miles, and commencing soon after the birth of their young are continued to the close of the season. There can be no doubt but that the nursing females are the most constantly exposed of any class of seals to the destructive methods of pelagic sealing in Bering Sea, and that their capture during the breeding season is, of all the agencies tending toward the diminution of the seal herd, the one most to be deplored.

SLEEPING FUR SEAL. USUAL POSITION. AUGUST 7, 1894, BERING SEA.
(Floating back down, with hind flippers turned forward. Photographed at distance of 35 feet.)

FUR SEALS JUST AWAKENED, AUGUST 7, 1894, BERING SEA.

The opening of Bering Sea to pelagic sealing has proved the most fatal of all the provisions of the Paris award.

EFFECTIVE METHODS OF THE SEALING FLEET.

The effectiveness with which pelagic sealing may be carried on in a circumscribed hunting ground like Bering Sea may be more clearly set forth by directing attention to the number of hunting boats engaged during the past season. The sealing fleet consisted of 38 schooners, carrying from 6 to 20 boats or canoes apiece—the average number being about 12. The boats hunted in all directions, frequently going 10 miles away from the vessels to which they belonged, the hunting areas of the different schooners thus overlapping at times. I have often spoken canoes 8 miles from their schooners. Pursuing seals in this systematic way, 38 vessels carrying somewhat more than 450 boats, took 31,542 skins in six weeks, notwithstanding the fact that many of them were late in reaching Bering Sea from the Japan coast, and left early on account of having their North Pacific catches on board, for the purpose of being early in market, on account of the impatience of Indian hunters already wearied with the long Japan coast cruise, lack of provisions, or for other reasons.

THE USE OF SPEARS.

Of the Canadian fleet in Bering Sea, all but six schooners carried Indian hunters from Vancouver and Queen Charlotte islands. These natives have been taking seals off their own shores with the spear from time immemorial, and it was a fatal mistake on the part of the Paris Tribunal to underestimate the efficiency of spears in such hands, a fact doubtless well known to those having charge of the British side of the case.

The spear used during the past season is very similar to that figured by Scammon twenty years ago in writing of pelagic sealing by these natives.[1] The spear pole is 12 to 14 feet long, pronged, with two detachable barbed iron spear points, secured by a 30-yard line, the end of which is tied to the boat. When a seal is struck the barbed points slip off the pole, the latter being recovered after the seal has been pulled alongside the canoe and clubbed. Seals fight vigorously at such times and seldom fail to leave permanent marks of their sharp teeth on boats and canoes, while large bulls are very dangerous to handle.

Pelagic sealing is altogether impracticable for our own Aleut natives, their light skin-covered bidarkies not being constructed to withstand such attacks as wounded seals make with their teeth.

CHANGE OF FEEDING GROUNDS.

The fur seal changes its feeding grounds in Bering Sea from year to year. The changes appear to be quite marked, and are doubtless dependent on the food supply. The pelagic catch for the summer of 1894 was made chiefly to the southeast of the Pribilofs, the rest of the catch being made south, southwest, west, and northwest of the islands. A small proportion only were taken along the border of the plateau.

Capt. J. W. Todd, of the sealer *Rose Sparks*, states that in 1889 he found seals plentiful to the northeast of the Pribilofs, and moderate numbers were to the northwest and southeast. In 1887, when sealing with the schooner *Lilly L.*, he found the herd chiefly to the southeast, taking 197 seals in two days.

[1] Marine Mam., Scammon, p. 159.

Captain McCauley, of the sealer *Beatrice*, found seals plentiful 250 miles to the westward of the Pribilof Islands in 1891. Captain McLean, of the sealer *Favorite*, also reports a great abundance of seals to the westward of the islands in 1891 (latitude 56° 50′, longitude 173° 30′), ten canoes taking (with guns) 972 seals in three days.

Captain Guillams, of the sealer *Louis Olsen*, having in former years found seals in greatest numbers to the westward of the Pribilofs, cruised persistently in that portion of Bering Sea during the past season, taking only 84 seals.

Many other sealers confidently expecting to find the bulk of the seal herd to the westward of the Pribilofs cruised there at the opening of the past season without success, but later made good catches to the southeastward.

While engaged in pelagic sealing investigations with the United States revenue cutter *Corwin* in 1892 fur seals were plentiful to the westward of the Pribilofs, the cutter *Rush*, cruising to the east at the same time, meeting with very few.

NOTES ON THE FOOD OF SEALS.

Captain Todd says the food of seals taken near the mainland consists largely of salmon, and that this is true of the Japan and Copper Island sealing grounds as well as of the North American coast.

Captain Magnesen, of the sealer *Walter Earle*, reports the seals taken on August 25, 1894 (latitude 56° 13′, longitude 172° 44′), as feeding on salmon.

Capt. S. Balcom, of the sealer *Walter Rich*, reported taking salmon occasionally from the stomachs of seals speared in Bering Sea in August, 1894.

Capt. H. F. Siewerd, of the sealer *Mascot*, in 1894, collected the stomachs of three seals, containing pollock apparently, at the following position: Latitude north 56° 10′, longitude west 171° 45′; August 28, latitude north 58° 01′, longitude west 173° 29′; latitude north 58° 02′, longitude west 172° 45′, September 8.

Captain Siewerd writes that other seals opened at the first position contained nothing but squid, and at the second position cod and squid; but it is possible that the fish observed were pollock, which closely resemble cod.

Contents of the stomachs of 33 fur seals[1] taken during the month of August, 1894, at distances varying from 100 to 140 miles west and northwest of the Pribilof Islands, along the border of the plateau, collected by A. B. Alexander, with the schooner *Louis Olsen*, show the following:

Date.	Latitude north.		Longitude west.		Sex.		Contents of stomach.
					M.	F.	
	°	′	°	′			
Aug. 4	57	50	173	48	....	4	Fish, much digested, apparently pollock.
6	58	30	173	56	3	3	Do.
6	58	30	173	56	1	....	Pollock or cod, with one-half dozen squid; beaks small.
7	58	30	173	56	1	13	Fish, much digested, apparently pollock.
7	58	30	173	56	1	....	Full peck of red-fleshed fish resembling salmon; bones not determined.
10	58	27	172	46	....	1	Fish, digested, probably pollock.
11	57	42	172	52	....	....	Pollock.

[1] Fifteen stomachs containing fish bones were saved for further examination, others thrown away.

INDIAN HUNTER OF SEALING CANOE. SHOWING DOUBLE-POINTED SPEAR POLE; DETACHING SPEAR POINTS WITH LINE 30 YARDS LONG; PADDLE; KILLING CLUB AND WOODEN CANOE BAILER. SCHOONER FAVORITE.

ander reports the seals taken by the *Olsen* to have been . pollock, whenever identification was made with certainty. als were speared in the act of eating pollock, the fresh rem- ing identification certain. During the cruise large cod were aling stations in depths of 60 and 70 fathoms, and were so that the decks could have been filled with them, although hs of the seals taken contained pollock. The stomachs of ntained starfish, prawns, squid, jelly-fish, and a few small hing of the kind being found in the stomachs of seals taken e positions. Some of the cod weighed 30 pounds, the aver- 9 pounds, while an examination of the fish eaten by the s the fish to have been of the size of pollock or smaller. . appear that the seals taken by the *Olsen* were feeding near .

LE USE OF FIREARMS IN SEALING DURING SEASON OF 1894.

d to the surreptitious use of firearms in Bering Sea, I have at conspicuous blood stains were noticed on several rookeries eptember 9 and 12, 1894, both by the Treasury agents and l indicated the presence of wounded animals. In a few cases were found. The blood as noticed in a dozen or more of spattered upon the rocks from the beach well back into the leaving distinct bloody trails, with occasional bowlders well ere the animals had paused. The stains were fresh, although lly effaced by moving seals and wet weather.

DEAD SEALS FOUND (ALL ADULTS).

ookery, 1 female; Starry Arteel, 1 female; Garbotch, 1 male ales; Tolstoi, 3 females; Zapadnie, 1 male and 2 females;

asses on Zapadnie were comparatively fresh, the others had probably three weeks. From the fact of these carcasses e rookeries and rubbed and fouled by seals constantly crawl- em, I could not determine the presence of gunshot marks. out of the above count three rotten carcasses found on Gar- apparently died early in the season.

. Alexander reports that while cruising with the *Louis Olsen* heard from the vessel on August 10 during foggy weather, e hunters reported hearing guns constantly while out in the same day. The crew are of the opinion that the firearms used for sealing, although nothing was seen.

ters of the *Favorite* reported in Unalaska on August 27 that l firearms in Bering Sea on several occasions. When I he *Walter Rich* in Bering Sea September 6, the captain aving speared a seal on the 5th freshly wounded with buck-

of a similar character came to our ears at times during the he patrol fleet found it impracticable to search vessels at ng more than a cursory examination being possible under stances. If guns are to be prohibited, sealing vessels should d at the Unalaska wharf, or some other favorable place e is a possibility of overhauling their cargoes in an effective

Fur-seal catch in Bering Sea in 1894.

[From official sources.]

AMERICAN VESSELS.

Vessel.	Males.	Females.	Total.	Remarks.
Ella Johnson	322	892	1,214	Entered at Port Townsend.
Dexahks	155	868	1,023	Do.
Stella Erland	219	542	761	Do.
Ida Etta	204	532	736	Do.
Columbia	180	223	403	Do.
Allie Algar	128	199	327	Do.
Therese	81	237	318	Entered at San Francisco.
Rose Sparks	37	160	197	Do.
Jane Grey	46	92	138	Do.
Louis Olsen	16	68	84	Catch landed at Victoria.
Total	1,388	3,813	5,201	

CANADIAN VESSELS.

Vessel.	Males.	Females.	Total.	Vessel.	Males.	Females.	Total.
Triumph	1,163	2,077	3,240	Henrietta	427	340	767
Sapphire	1,226	879	2,105	Kilmeny	307	327	634
Annie Moore	938	1,009	1,947	Saucy Lass	290	378	668
Ainoko	1,092	565	1,657	Mascot	299	246	1,103
Minnie	679	986	1,665	Mary Ellen	105	352	457
Walter Rich	1,000	749	1,749	Rosie Olsen	425	431	856
Favorite	752	488	1,240	Vera	80	115	195
Beatrice	342	818	1,160	Aurora	79	138	217
Katherine	490	569	1,059	Arietis	39	52	91
Venture	417	492	909	Shelby	323	145	377
Kate	303	564	867	Teresa	.....	.....	†670
San Jose	256	593	749	Labrador	179	381	560
Fawn	310	336	646	Umbrina	30	30	60
Walter Earle	155	517	672				
Borealis	90	1,059	1,149	Total	11,705	14,636	26,341

TOTAL CATCH, AMERICAN AND CANADIAN, IN BERING SEA.

	Males.	Females.	Total.
American	1,388	3,813	5,201
Canadian	11,705	14,636	26,341
Total	13,093	18,449	31,542

Fur-seal catch of Canadian vessels for 1894.

[From official sources.]

essels.	Tons.	Crews.		Catch.					Total.
		White.	Indians.	British Columbia coast.	Japanese coast.	Copper Island.	Bering Sea.		
							Male.	Female.	
)	69	22			1,254	314			1,568
n	39	6	16		1,043		425	431	1,899
	99	25			2,588	153	30	30	2,801
Hattie	81	24			1,733	176			1,909
	150	19			1,961	433			2,394
	100	26			2,383	343			2,726
	86	25			1,197		39	52	1,288
	63	22			1,926				1,926
erd	24	26			2,584				2,584
Earle	68	8	20		1,471		155	517	2,143
	159	6	18		911		310	336	1,557
odonald	107	26			1,707	471			2,178
	99	24			710				710
	73	25			1,603	503			2,108
n Diego	46	16			1,304	250			1,554
lor	43	19			874	250			1,124
	93	22			1,010	200			1,210
	58	14			925	907			1,122
a	63	28			1,909	86	105	352	2,452
	92	26			1,437				1,437
ward	60	20			606	35			641
	70	20			1,306	296			1,602
	60	19			1,075		80	115	1,270
. Cox	76	24			1,947				1,947
	98	8	36	1,320			1,163	2,077	4,560
	86	25			1,014	623			1,637
rin	96	23			2,118				2,118
	109	8	32	535			1,226	879	2,640
Paint	82	26			1,497	531			2,028
	92	27			1,092	558			1,650
	63	25			1,102	120			1,222
pel	56	22			1,783	171			1,954
e	83	22			530	274			804
	97	24			1,343	86			1,429
	41	18			693	21	79	138	931
I. Smith	99	27			96	81			177
	66	5	22	358			342	818	1,518
	40	4	16		558		299	246	1,103
	180	5	37	606			752	488	1,846
Moore	13	8	37	309			938	1,009	2,256
	25	5	14	308			179	381	868
	25	2	7	400					400
	66	24		418		1,263			1,681
s	38	7	17	170			290	378	838
	37	6	20	303			90	1,059	1,452
	32	6	26	269			490	569	1,328
	75	5	22	467			1,092	565	2,124
	58	5	20	79			303	564	946
	16	5	10	34			232	145	411
	48	3	17				417	492	909
Rich	76	9	25	691			1,000	749	2,440
Chief	23	1	13	175					175
ld	21		8	92					92
	46	6	20	488			679	996	2,153
	31	5	14	20			256	593	869
	19	2	12				307	327	634
	31	5	17	315			427	340	1,082
l	51	7	22	357					357
	49	21			1,703				1,703
h by Indians				3,989					3,989
l	3,866	888	518	11,703	48,993	7,437	11,705	14,636	94,474

Description.	1894.	1893.
vessels	59	55
ite crews	818	847
lian crews	518	432
lumbia coast catch	11,703	29,113
t catch	48,993	29,206
and catch	7,437	12,013
catch	26,341	
l Canadian catch	94,474	70,332

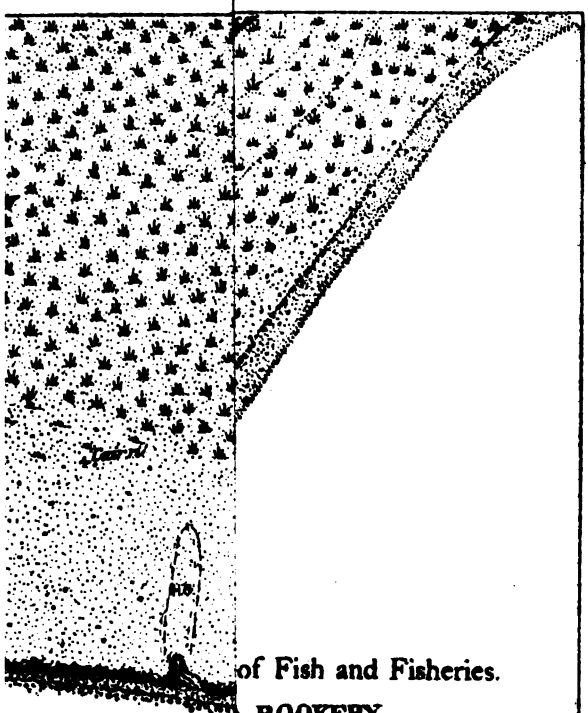
Fur-seal catch of American vessels for 1894.

[Prepared by A. B. Alexander.]

Vessel.	Northwest coast.	Japan coast.	Copper Islands.	Bering Sea.	Tot
Alton		1,185			1,
Alexander		810			
Anaconda		397			
Anna Matilda		785			
Allie I. Algar		1,395		327	1,
Bonanza		1,724			1,
Bowhead		1,407			1,
C. G. White		936			
Emma and Louisa		1,166			1,
Emma	66				
Eppinger		1,080			1,
Edward E. Webster		1,650			1,
Ella Johnson				1,214	1,
Ethel	5				
Geo. Peabody		231			
Geo. R. White *a*	80				
H. C. Wahlberg		326			
Henry Dennis	6	855			
Herman		968	324		1,
Ida Etta	126			736	
Jane Grey		1,155		138	1,
Kate and Ann	15	672			
Louis D	15	1,600			1,
Louis Olsen		1,197		84	1,
Lillie L		594	84		
Josephine		150			
Mary H. Thomas *b*					
Mascot *c*		535			
Mattie T. Dyer		862	290		1,
Mathew Turner *d*		857			
Penelope		656			
Prescott		325	102		
Retriever		837	661		1,
Rattler		1,046	109		1,
Rosie Sparks		420		197	
St. Paul	86				
Sophia Sutherland		1,788			1,
San Diego *d*		600			
Stella Erland				761	
Teresa		686		318	1,
Volunteer	100				
Willard Ainsworth		893	201		1,
Winchester		1,606			1,
Amature *e*	225				
Columbia *e*	564			403	
C. C. Perkins *e*	45				
Deeahks *e*	400			1,023	1,
Dart *e*	29				
Felitz *e*	160				
James G. Swan *e*	600				
Puritan *e*	180				
Total	2,652	31,376	1,771	5,201	41,

a This vessel not yet returned.
b Lost; number of skins not known.
c Lost; 535 skins taken; none saved.
d Lost; skins not saved.
e Indians from Neah Bay.

2



of Fish and Fisheries.

ROOKERY

d, Bering Sea.

d by Fur Seals in 1895.

rmined by

send, *Assistant.*

28 ft.-1 inch.

1 2 3 *inches*

approximately 10 ft

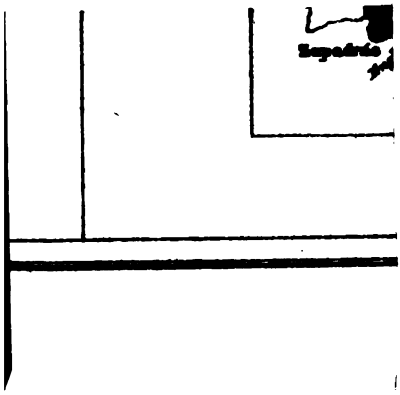
- mixed vegetation.

rom time to time by seals hauling,
grass.

ng Grounds.

g "

ation July 24



Fur-seal catch of American vessels for 1894.

[Prepared by A. B. Alexander.]

Vessel.	Northwest coast.	Japan coast.	Copper Islands.	Bering Sea.	Total.
Alton		1,185			1,185
Alexander		810			810
Anaconda		397			397
Anna Matilda		785			785
Allie I. Algar		1,395		327	1,722
Bonanza		1,724			1,724
Bowhead		1,407			1,407
C. G. White		936			936
Emma and Louisa		1,166			1,166
Emma	66				66
Eppinger		1,080			1,080
Edward E. Webster		1,650			1,650
Ella Johnson				1,214	1,214
Ethel	5				5
Geo. Peabody		231			231
Geo. R. White *a*	80				80
H. C. Wahlberg		326			326
Henry Dennis	6	855			861
Herman		968	324		1,292
Ida Etta	126			736	862
Jane Grey		1,155		138	1,293
Kate and Ann	15	672			687
Louis D	15	1,600			1,615
Louis Olsen		1,197		84	1,281
Lillie L		594	84		678
Josephine		150			150
Mary H. Thomas *b*					
Mascot *c*		535			535
Mattie T. Dyer		862	290		1,152
Mathew Turner *d*		857			857
Penelope		656			656
Prescott		325	102		427
Retriever		837	661		1,498
Rattler		1,046	109		1,155
Rosie Sparks		420		197	617
St. Paul	86				86
Sophia Sutherland		1,788			1,788
San Diego *d*		600			600
Stella Erland				761	761
Teresa		686		318	1,004
Volunteer	100				100
Willard Ainsworth		893	201		1,094
Winchester		1,606			1,606
Amature *e*	225				225
Columbia *e*	564			403	967
C. C. Perkins *e*	45				45
Decahks *e*	400			1,023	1,423
Dart *e*	29				29
Felitz *e*	160				160
James G. Swan *e*	600				600
Puritan *e*	180				180
Total	2,652	31,376	1,771	5,201	41,000

a This vessel not yet returned.
b Lost; number of skins not known.
c Lost; 535 skins taken; none saved.
d Lost; skins not saved.
e Indians from Neah Bay.

THE ROOKERIES IN 1895.

LETTER OF TRANSMITTAL.

U. S. COMMISSION OF FISH AND FISHERIES,
OFFICE OF THE COMMISSIONER,
Washington, February 1, 1896.

SIR: I have the honor to forward herewith copies of two reports by Mr. C. H. Townsend, naturalist of the United States Fish Commission steamer *Albatross*, entitled as follows:

Report upon the condition of the seal rookeries of the Pribilof Islands, Alaska, in 1895.

Report on pelagic sealing in 1895.

The former is illustrated by 11 charts and 42 photographic views, of which only the charts have been completed, and are now transmitted. The photographs are in course of printing and will be furnished at an early date.

Very respectfully, HERBERT A. GILL,
Acting Commissioner.

The SECRETARY OF THE TREASURY,
Washington, D. C.

INTRODUCTION.

In the present report are recorded the results of observations made by the writer on the fur-seal rookeries of the Pribilof Islands, Alaska, during the summer of 1895, in continuation of the annual inquiries respecting that subject, beginning with the season of 1892. It is accompanied by 11 charts and 42 photographic views, duplicating those of previous years—the former indicating the outlines of the breeding grounds and those of the hauling grounds in part, the latter illustrating the condition of the more important portions of each rookery at the height of the breeding season. The stations from which the photographs were taken are the same as those previously occupied for that purpose, while the dates of both the charts and photographs correspond as closely with those of preceding years as the conditions of weather permitted or other circumstances, explained below, made advisable.

PRIBILOF ISLANDS.

The steamer *Albatross* first reached St. Paul Island, of the Pribilof group, on June 24, 1895, being then en route to the Commander Islands, Siberia, and remained at the former place until noon of the 26th. Mr. F. W. True, curator of mammals in the United States National Museum, together with an assistant, was landed on St. Paul Island for the purpose of making a series of independent observations respecting the rookeries, as was also Mr. N. B. Miller, assistant on the *Albatross*, the latter being provided with the necessary outfit for beginning upon the season's photographic work in case of any unforeseen delay in the return of the ship.

I spent the 25th and the forenoon of the 26th in going over the rookeries of Lukannon, Ketavie, Reef, Lagoon, and Tolstoi. Female seals were scarce, none being observed on any of the rookeries at a distance of more than 50 or 60 feet from high-water mark, although the usual rookery area was occupied by bulls. The harems in course of formation along the beaches were as yet very small, the average number of females to each being five. About one-fourth of the females were nursing new-born pups, the others being conspicuously gravid. Some sections of rookery ground were still covered with snow and a number of new-born young with the red placentæ still attached were lying upon the snow. Occasional females were noticed arriving from the sea, but none were seen leaving. There were no signs of any then coming into heat. A hasty count by harems of females and young at two favorable points resulted as follows:

Lukannon.—10 females, 5 pups; 2 females, 1 pup; 15 females, 2 pups; 4 females, 1 pup; 9 females, 4 pups; 9 females, 3 pups.

Ketavie.—14 females, 6 pups; 6 females, 1 pup; 8 females, 2 pups; 7 females, 4 pups; 10 females, 3 pups; 10 females, 2 pups; 8 females, 3 pups; 5 females, 1 pup.

The hauling grounds were fairly well occupied. A drive was made from Reef rookery on the morning of the 25th, about 1,200 being killed. At 1 p. m. the rejected seals had in large part returned to Zoltoi Neck, from which they had been driven, and were hauled out nearly all the way across. A drive of about 1,000 seals from Polavina rookery was made on the 26th, from which about 700 were killed.

COMMANDER ISLANDS.

The *Albatross* sailed at noon on June 26 for Bering Island, Siberia, where we arrived on July 3. Dr. Leonhard Stejneger, curator in the United States National Museum, was landed for the season, in order to study the condition of the seal rookeries and the habits of the Commander Island seals, respecting which he made an important series of observations during the years 1882 and 1883. The 4th was spent in visiting North rookery, 12 miles distant from Nikolski village, the trip being made on dog sleds furnished by Governor Grebnitzky. Although the weather was not clear, I succeeded in making highly satisfactory panoramas of the rookery, which lies in two sections, separated by a space of about three-fourths of a mile. The rookery is located at Yushin Point at the extreme northern end of the island. The larger section of the rookery occupies a flat, reef-like peninsula, the smaller being on the beach to the southwestward. Very few bachelors were present, and these were scattered so close to the breeding seals that distinct hauling grounds were not apparent. The breeding seals were very densely packed upon their respective areas, a large portion of the females having brought forth their young. The latter were beginning to collect into groups by themselves, and the females were rapidly coming in heat.

North rookery, the most important of the four rookeries on the Commander Islands, I estimated to be of about the same size and importance as Tolstoi rookery on the Pribilof Islands. With but one other rookery approaching it in size, it is evident that the seal fishery of the Commander Islands is of very moderate value as compared with that of the Pribilof Islands, while it is certain that there is at present no such supply of seals as would be necessary for the maintenance of the large fleet of vessels now operating upon this herd during its migrations between Bering Sea and the coast of Japan.

The positions where seals were taken by pelagic sealers during the season of 1895 in the waters adjacent to the Commander Islands were for the most part to the eastward, southward, and westward of the islands, within a radius of 100 miles, the catch of one vessel having been made off Cape Nagikinsky, 200 miles to the northwest. The data are derived from the log books of 5 American vessels whose catches aggregate 714 seals, taken between July 5 and September 4. In the year 1892 the schooner *Henry Dennis* made a catch of 563 seals between July 2 and August 28 in these waters, all seals being taken within 170 miles of the islands. The sex of seals taken is not stated. The total number of seals obtained by the combined Canadian and American fleets off the Russian coast during the season was 7,648, the positions where seals were taken by Canadian vessels not being at hand.

During the season of 1895 a sealing fleet numbering 45 vessels took 38,732 seals belonging to the Commander Islands herd, along the coasts of Japan and Russia. To this number should be added the catch made by a small fleet of a dozen or more vessels belonging to Japan, of which we have received no record. The Japan and Russian catch for the season is considered small, and would have been unprofitable but for a shortage in the total pelagic catch and a consequent advance in the price of seal skins.

PRIBILOF ISLANDS.

The *Albatross* returned to St. Paul Island on July 9, when I took up my quarters on shore for the season.

Resuming the observations left off in June, the rookeries of Lukannon, Ketavie, Lagoon, Tolstoi, and a portion of Reef rookery were examined very minutely and the breeding females occupying them carefully counted. This work, with brief visits to all the other rookeries, occupied the time until the 16th, when Ketavie and Lukannon rookeries were visited for chart data. On the 17th we went to St. George Island, where all the rookeries were photographed and their areas platted on the charts during the 18th and 19th. Returning to St. Paul Island on the 20th, the chart and photographic work was taken up and pushed rapidly to completion, the charts being finished on the 24th and the photographic series on the 27th.

From this date until August 9 I was engaged in making natural history observations on the rookeries, and in setting up artificial landmarks to outline the present limits of the rookeries and serve as guides for their delineation in future.

The latter work consisted in painting on suitable bowlders, in white lead, large crosses (+) that would be conspicuous from the photographic stations, and would appear in the panoramas that might be made hereafter. These crosses, placed on Northeast Point, Polavina, Reef, Tolstoi, and Upper Zapadnie rookeries, on St. Paul Island, and on Zapadnie rookery on St. George Island, were located with reference to the limits of the breeding grounds or the points where seals were massed.

On Northeast Point rookery four crosses, visible from Station 5, mark the rear limits of the principal masses of seals.

On Polavina rookery four crosses mark the limits—two on each side of Station G.

On Reef rookery five crosses from stations 17 to 18, mark limits or masses.

On Tolstoi rookery five crosses mark limits.

On Upper Zapadnie rookery six crosses mark limits or masses.

On Zapadnie (St. George Island) a cross marks the extreme western end of the rookery.

It seems advisable to have these artificial landmarks extended to some of the other rookeries and located on their respective charts.

Photographic Station G, on Polavina, was marked F by mistake and should be corrected.

Photographic Station 5, on Northeast Point, was appropriately marked.

CONDITION OF ROOKERIES IN 1895 AS SHOWN BY CHARTS AND PHOTOGRAPHS.

The changes that have taken place in the rookeries since July, 1894, are so marked that their depleted condition in July, 1895, is in general apparent upon comparison of the charts and photographs covering the two seasons. The usual number of seals not having appeared at the customary time of commencing the photographic work, the latter was purposely delayed in order that the ground might have ample time to fill up, the dates at which the photographs were made being mostly a week later than in 1894. Even after the slight spreading of the breeding seals that takes place as the season advances, the grounds were not at any time during 1895 occupied by their usual numbers of seals. Rookeries, or breeding grounds, strictly speaking, are the tracts within the limits of which young seals are brought forth, being perfectly distinct areas as contrasted with those over which they spread of their own accord somewhat later. The "spreading" which results from the swelling of the rookeries by the birth of thousands of young was scarcely perceptible during the season of 1895, the limited number of adults on the rookeries making it unnecessary for the animals to scatter to the usual distances from the beaches. Many old breeding males occupied their former positions in the rear of the rookeries, but remained alone, or with but two or three females during the season, their harems having been absorbed by harems nearer the beach and not permitted to pass back. Many of the branches of rookeries formerly extending well back of the breeding grounds at favorable points where the seals lie in masses have this year been absorbed into the main body of breeding seals. These changes are shown in the photographs of some of the rookeries and are represented on the charts. In many narrow rookeries stretched along beaches where the number of seals is not great, changes caused by a decrease in seal life are not of such a character as to be apparent in photographs until actual breaks occur. All such rookeries confined to narrow beach slopes are now thinned out to the verge of breaking apart in many places. They no longer overlap on to the level ground usually found above the slopes, and the surplus of male seals derived from their adjacent hauling grounds is no longer of any importance. Breaks which occur in rookeries are always carefully noted, as they are sure indications of decrease in the seal life of rookeries heretofore continuous. Certain thin sections as observed in 1894 indicated breaks likely to follow further decrease in seal life. As a result of the heavy loss of female and young seals caused by pelagic sealing in Bering Sea in 1894, many of the predicted breaks actually occurred in 1895. The destruction of a much larger number of females and young, through the operations of the sealing fleet in Bering Sea in 1895, will cause a reduction in the class of breeding seals next season, amounting practically to the loss of continuity in all the thin rookeries on the islands and rendering the business of pelagic sealing unprofitable.

The thinning out of the breeding seals and the consequent recedence of the breeding limits toward the beaches is followed by the encroachment of grass upon the bare ground but recently occupied by seals. Attention is called to a series of photographs taken annually which are illustrative of this feature.

It is impossible to represent satisfactorily the decrease of the rookeries by photographs or charts. The former are limited in number and have frequently to be taken from unfavorable points, while the reduction of a great tract more or less occupied by seals to the limits of a small photograph is often misleading except to those familiar with the ground. The case of the charts is similar, the changes in extensive areas of land not being impressive when indicated upon charts of small scale. Special attention is called, however, to the large panoramas taken from Stations 5, 17, and G, showing the large rookeries of Northeast Point, Polavina, and Reef. In all of these very comprehensive views the decrease in the number of seals and the withdrawal of the breeding limits toward the sea front is apparent.

ST. PAUL ISLAND.

Northeast Point rookery.—The thin patches of seals upon each side of Sea Lion Point are reduced in numbers and area. From station 6 to the point two important breaks occur at points opposite the marshes. From the point to Station 5 the rookery has visibly narrowed and the seals have decreased in numbers. From Hutchinson Hill one of the most important changes of the year is visible. The photograph from Station 5 shows the wide rookery ground to be narrower than ever before. At only one point were young seals born as far back as the base of the hill. At Station 4 the change is amply shown by the photograph, which, although taken eleven days later than in 1894, shows no indication of seals spreading to their former limits. South of Station 4 the seals for the first time failed to cover an important tract extending back in the direction of Hutchinson Hill. This is shown in the photograph from Station 3. The animals usually somewhat massed at this point have found room upon the immediate beach slope. From Station 3 to Station 1 the breeding seals are confined to the narrow beach slope, very difficult of examination. Here the rookery is exceedingly thin, which is indicated to a slight degree in rather unsatisfactory photographs. The decrease in the number of seals at this great rookery since 1894 is very marked.

Polavina rookery.—The main rookery, situated on a comparatively level tract, is shrunken perhaps 50 per cent in dimensions, and at no point extends back to the limits of 1894. The small communities occupying the ledges under the cliffs north of the point were much reduced in numbers, and with the exception of a few stragglers did not overlap on the plateau above. The photograph of the main rookery, taken at short range, shows the breeding line to have receded toward the beach, while the level ground at the left remained unoccupied. Another view from Station 21, at still shorter range, shows a loss of seals from the foreground and extreme background.

At Little Polavina rookery the branches of the rookery extending back on the plateau have been absorbed, while the remnant along the cliff is thinned and lies in patches. Foggy weather prevented satisfactory photographic work.

Lukannon rookery.—The breeding line here was drawn somewhat lower than usual, and at no time during the season were the seals

hauled back to the customary limits. For the first time during my observations of this ground no young were born on the hill above Station 12. Photograph 26 is useless for comparison, the breeding seals being altogether in the dim background to the left. The eastern two-thirds of Lukannon rookery was counted on July 12; it contained 1,840 females.

Ketavie rookery.—Now thinner than ever before. It is broken apart in many places. All the young born this season were on the lower ledges, and there was no seasonal spreading back whatever. The ground is easily commanded, and a careful count was made. There were only 2,070 females between Station 12 and Ketavie Point. Photograph 13 shows a reduced tract, with bulls in the rear that were unable to form harems in 1895. The other photographs of Ketavie show a decrease.

Reef rookery.—A comparison of the charts and photographs of this ground for the seasons of 1894 and 1895 will show in a measure the change for the worse that has taken place. Photograph 16 shows the recedence of seals on the hill slope toward the water's edge. Photograph 17 shows a recedence toward the sea and a very distinct decrease. The great extent of this panorama is more graphically indicated on the chart (east of Station 17). No. 18 shows the recedence of the seal belt resulting from diminished numbers and the consequent isolation of old bulls on breeding ground no longer reached by females. No. 19 shows a recedence from the higher ground. No. 20 shows a reduction and a recedence toward the water. The photograph of the grass area on this rookery is especially interesting as proving the rapidity with which grass takes possession of ground which a few years back was teeming with seals. This area, devoid of grass in July, 1892, was selected and marked at that time for annual observation. Being now well grass-grown, as the photograph proves, it is valuable as showing the rapidity with which grass grows on ground recently vacated by seals, a fact denied at some length by the British Bering Sea commissioners (see British Counter Case, Fur Seal Arbitration, Ex. Doc. 177, part 8, p. 504). Not only has the area marked by cairns become grass-grown, but the entire tract between the rookeries is now a continuous meadow covered with weeds and flowers.

Lagoon rookery.—Here there has been a perceptible shrinkage at the ends. The photograph shows how the west end is breaking apart into small harems. This long and thin rookery may be expected to illustrate next season the damage that will surely result from the past season's loss of females and young. When counted on July 11, the whole area contained 1,268 female seals.

Tolstoi rookery.—This rookery has diminished very perceptibly. Photograph F shows that the seals no longer ascend the hill and surround the large bowlder on the extreme left, while photograph 11 shows a thinning out in the foreground and a recedence from the left end. Allowance should be made for a change in the shape of the bay itself, a hundred feet or more of sand having filled in the bight at the left end of the rookery. A pencil line on photograph 11 shows the true bearing of the camera. The number of female seals along the narrow beach from the dotted line toward the point at the right (see photograph 11) was 1,520 on July 11, 1895.

Lower Zapadnie.—Photograph 7 is too dim for comparison. Photograph 7[a], although made at long range, indicates a decrease. In photograph 8[a], the camera having been wrongly placed, comparison with the preceding year is unfavorable, but diminished numbers are indicated. Lower Zapadnie is greatly reduced since 1894.

Upper Zapadnie.—The view from Station 8 is too distant for satisfactory comparison, but reduced numbers are apparent. In photographs 9 and 10 it will be noticed that some old bulls in the rear of the rookeries were unable to form harems, and in photograph 10 the continuity of the patch of seals near the sea is broken. In general there has been a shrinkage in territory and a marked reduction in numbers.

ST. GEORGE ISLAND.

North rookery.—Photograph 2 illustrates, on a small scale, the absorption of the small harems in the rear into the main body of the rookery nearer the sea—the result of lessened numbers. This ground, when counted July 18, contained 110 females.

Little East rookery.—There is here a decrease and a shrinkage in area, indicated to some extent in the photograph.

East rookery.—A very perceptible reduction in numbers.

Starry Arteel rookery.—A great reduction in numbers, with consequent abandonment of the high ground in the rear.

Zapadnie rookery.—The change here is shown on the chart. The rookery has diminished in numbers and extent. The present condition of the rookery is well shown by a new photograph from Station H.

List of the charts showing the outlines of the rookeries on the Pribilof Islands, July, 1895.

ST. PAUL ISLAND.

Northeast Point rookery	July 24, Chart A
Polavina rookery	July 24, Chart B
Ketavie and Lukannon rookeries	July 16, Chart C
Reef and Garbotch rookeries	July 21, Chart D
Tolstoi and Lagoon rookeries	July 23, Chart E
Zapadnie and English Bay rookeries	July 20, Charts F and G

ST. GEORGE ISLAND.

Starry Arteel rookery	July 19, Chart H
North rookery	July 18, Chart I
East and Little East rookeries	July 18, Chart J
Zapadnie rookery	July 19, Chart K

List of the photographs of the seal rookeries on the Pribilof Islands taken in July, 1895, by N. B. Miller and C. H. Townsend, showing the dates on which they were made.

ST. GEORGE ISLAND.

Starry Arteel rookery	July 18 (N. B. M.)
North rookery	July 18 (N. B. M.)
Little East rookery	July 18 (N. B. M.)
East rookery	July 18 (N. B. M.)
Zapadnie rookery	July 19 (C. H. T.)

ST. PAUL ISLAND.

Northeast Point rookery	July 24 (C. H. T.)
Little Polavina rookery	July 24 (C. H. T.)
Polavina rookery	July 26 (N. B. M.)
Lukannon rookery	July 20 (N. B. M.)
Ketavie rookery	July 20 (N. B. M.)
Reef rookery	July 20 (N. B. M.)
Lagoon rookery	July 27 (C. H. T.)
Tolstoi rookery	July 24 (N. B. M.)
Lower Zapadnie rookery	July 20 (C. H. T.)
Zapadnie rookery	July 20 (C. H. T.)

NUMBER OF BREEDING FEMALES ON THE ISLANDS.

Upon the return of the *Albatross* to the Pribilof Islands on July 9, 1895, a general examination of the rookeries was made. Some of the narrower breeding grounds were so thinly covered with seals that it seemed quite possible to count them. Accordingly, Mr. True and I began on Ketavie rookery and on the 9th and 10th succeeded in taking a satisfactory census. The harems seemed full and well defined, no coalescing having begun, and they were therefore counted separately. This work was continued with Lagoon rookery and portions of Tolstoi, Lukannon, and Reef rookeries, where female seals were counted as follows: Ketavie, 2,218; Lukannon, 1,940; Lagoon, 1,216; Tolstoi, 1,539; Reef, 566. The whole number counted was 7,479.

Narrow places limited to the beach slope, like Lagoon rookery, were not difficult to count from a boat when the sea was smooth, while no trouble was encountered in doing the same with thin rookeries that could be viewed from low cliffs. The value of the data secured can not be overestimated, it being the first time that rookeries were found sufficiently reduced in the number of breeding females to admit of their numbers being determined with any degree of precision. Although these rookeries may not have quite reached their breeding height, they were so near to it that the corrections to be applied are unimportant. With a very fair set of figures for the extensive area thus examined, we are able to form a more accurate estimate of the number of breeding females on the Pribilof Islands than ever before. Adopting the scale of the rookery charts prepared by Mr. J. Stanley-Brown (264 feet to 1 inch) we find the 7,479 seals counted to be distributed over 7.05 acres, making 1,061 seals to the acre. The remaining area occupied by seals has been computed at 54.47 acres, as based upon the rookery ground delineated on the charts for 1895. The result is a total of 65,239 breeding females for all the rookeries of the two islands. Some corrections might be applied for certain tracts on Reef, Tolstoi, and Northeast Point rookeries, where the seals always lie more or less massed, but I can not admit that there were between July 10 and 15 more than 75,000 breeding females present upon the islands. There is also a correction to be applied for a moderate number of females not on the rookeries at the time the breeding females were being counted. As the season was backward, and the females later than usual in arriving, their appearance was made en masse, so it is altogether probable that the number of absentees was not important.

From the 10th to the 15th of July the rookeries were filled with females that had just brought forth their young. They had not noticeably begun going to sea to feed, and at no other time were so many coming in heat. It is altogether unlikely that any very important number of females could have been away from the rookeries at a time when the females were still in excess of young. Mr. True found the percentage of young to be 62 on July 9, while on July 20 the young were everywhere in excess of females. Later in the season 50 per cent, at least, of the females were customarily absent from the rookeries.

nsus of Ketavie rookery, by harems, from North End to Ketavie Point, on July 9 and 10.

[The numbers indicate breeding females in each harem.]

14	34	75	42	1	1	10	37	14	3
7	1	1	3	14	8	32	22	2	13
15	12	1	4	38	13	14	24	27	10
60	5	5	9	31	12	12	22	11	13
40	13	6	26	22	35	17	15	25	21
10	16	11	34	5	1	21	3	27	10
3	52	1	2	27	10	13	2	22	5
3	1	13	15	43	29	13	10	13	55
23	5	50	9	1	1	4	16	34	1
24	47	21	21	29	3	9	10	3	1
28	13	17	12	145	15	13	2	10	2
43	13	28	20	64	8	16	6	23	

Whole number of breeding females..... 2,213
Whole number of harems..... 119
Average females to harem..... 18—

Census of Lagoon rookery, by harems, on July 10.

[The numbers indicate breeding females in each harem.]

8	32	18	2	19	4	5	31	19	16
9	20	31	24	1	15	2	20	1	20
38	16	8	26	23	35	16	6	3	12
12	16	4	28	4	23	6	7	67	1
4	41	37	7	67	14	9	14	20	2
16	21	4	42	48	4	26	1	25	4
1	4	1	7	39	3	10	4	18	15
1	8	1	3	24	16	22	10	25	41

Whole number of breeding females..... 1,216
Whole number of harems..... 80
Average females to harem..... 15+

Census of Tolstoi rookery, by harems, from the Point to end of Grass Bluff, on July 11.

[The numbers indicate breeding females in each harem.]

7	9	12	7	8	15	4	14	3	10
8	16	20	12	24	13	10	12	1	1
1	4	16	16	15	31	18	17	15	1
1	10	9	6	1	13	20	15	10	34
8	19	15	1	11	18	26	4	20	1
29	3	14	3	2	25	16	3	26	28
2	9	24	27	1	11	45	8	7	1
45	4	20	42	6	1	21	5	2	29
1	6	11	1	1	9	1	22	51	17
15	3	32	3	37	25	6	23	15	5
18	5	47	24	11	18	10	31	13	31
1	4	1							

Whole number of breeding females..... 1,539
Whole number of harems..... 118
Average females to harem..... 13+

Census of Lukannon rookery, by harems, from bluff to ledge of flat rocks, on July 1

[The numbers indicate breeding females in each harem.]

26	35	13	12	3	10	9	5	39	18
27	1	5	51	5	16	9	55	1	9
14	27	31	6	26	9	21	3	48	35
44	46	14	16	34	1	2	54	17	40
1	19	2	68	25	10	17	40	8	11
32	6	21	45	7	10	1	68	30	24
45	70	22	53	7	18	21	16	12	3
38	62	28	3	21	9	5	2	3	35
5	2	36	13	13	11	19	12	74	

Whole number of breeding females..... 1,940
Whole number of harems..... 89
Average females to harem..... 21+

Census, by harems, of a portion of Reef rookery, below bluff north of Station 19, on

[The numbers indicate breeding females in each harem.]

12	14	2	31	7	13	9	74	14	5	20
9	10	4	16	25	11	16	16	1	21	14
4	9	4	37	8	14	90	9	55	1	1

Whole number of breeding females	568
Whole number of harems	33
Average females to harem	17
Whole number of breeding females counted on Ketavie, Lukannon, Tolstoi, Lagoon, and Reef rookeries	7,479
Whole number of harems	434
Average females to harem	17+

RESTORATION OF THE ROOKERIES.

With the number of breeding females in the Pribilof seal herd ished to about 75,000 in July, 1895, and this number further re by the pelagic loss of August and September (certainly not less 30,000 females out of the catch of nearly 44,000), we have remai very limited breeding stock, and yet, notwithstanding this c stance, if absolute protection can be guaranteed to the seals w delay and for a term of years, the stock is still large enough to a comparatively rapid restoration of the rookeries. If there further loss of females during the present winter by sealing Northwest Coast, we may fully expect to find the rookeries i occupied by the present number of breeding females, about together with several thousand 3-year-old females that will then b breeders. It is exceedingly difficult to calculate the increase of old breeding females for that time, there being no record of the p tion of 2 and 3 year old females lost during the pelagic sealing past two seasons. It is evident that the loss of over 50,000 p 1894–95 will result in a poor showing of breeding females in 18 Supposing, however, that the existing breeding females, with female progeny, were secured against destruction in future, the r tion of the rookeries would be certain, and the rate of increas rapid from year to year.

The following table showing the increase in seal life that naturally result from the complete protection of females is based the natural-history facts that they breed annually from the thir and produce both sexes in equal numbers. The loss from n causes, such as old age, injuries received on the rookeries, killer w etc., is probably unimportant.

Assuming a breeding class of 50,000 seals in 1896, there is show increase to nearly half a million in ten years, while at the end of tw years the breeding females alone number over 6,500,000. The an increase of young males would be equal to the annual increase of yo females, or to half the breeding females. A very small proportio these being required for breeding purposes, this class would practic be available annually as a surplus. Not only do seals breed earl life, and with great regularity, but they return to their bree grounds with a faithfulness which demonstrates the security they there. The seal rookeries of the Pribilof Islands can, therefore, unq tionably be restored, and at a known ratio of increase. These fig may appear startling, but they are founded on simple natural-his facts.

INCREASE YOUNG FEMALES	TOTAL YOUNG FEMALES		INCREASE BREEDING FEMALES	TOTAL BREEDING FEMALES
25,000	25,000			50,000
25,000	50,000			50,000
25,000	75,000			50,000
37,500	87,500	B	25,000	75,000
50,000	112,000	C	25,000	100,000
62,500	150,000	D	25,000	125,000
81,250	193,750	E	37,500	162,500
106,250	250,000	F	50,000	212,500
137,500	325,000	G	62,500	275,000
178,125	421,875	H	81,250	356,250
231,250	546,857	I	106,250	462,500

Table showing the increase in seal life that would naturally result from the complete protection of the females.

Year.	Breeding females.	Annual increase of young females.	Annual increase of breeding females.	Total breeding females.
1896	50,000	25,000	(a)	.....
1897	50,000	25,000	(a)	.....
1898	50,000	25,000	(a)	.....
1899	50,000	37,500	25,000	75,000
1900	75,000	50,000	25,000	100,000
1901	100,000	62,500	25,000	125,000
1902	125,000	81,250	37,500	162,500
1903	162,500	106,250	50,000	212,500
1904	212,500	137,500	62,500	275,000
1905	275,000	178,125	81,250	356,250
1906	356,250	231,250	106,250	462,500
1907	462,500	300,000	137,500	600,000
1908	600,000	389,062	178,000	778,125
1909	778,125	504,687	231,250	1,009,375
1910	1,009,375	654,687	300,000	1,309,375
1911	1,309,375	844,718	389,062	1,689,437
1912	1,689,437	1,097,062	504,687	2,194,124
1913	2,194,124	1,424,405	654,887	2,848,811
1914	2,848,811	1,846,764	844,718	3,693,529
1915	3,693,529	2,395,295	1,097,062	4,790,591
1916	4,790,591	2,818,677	1,846,764	6,637,355

a Available as breeders at third year.

LOSS OF YOUNG SEALS BY STARVATION.

The steamer *Albatross* having left Bering Sea in 1895 somewhat earlier than usual, I did not visit the rookeries on the Pribilof Islands in September to repeat the observations made by me at the same season in 1894, respecting the loss of young seals resulting from pelagic sealing. Arrangements were made, however, with the resident Treasury agents for a full and explicit report as to the extent of the damage that was certain to result from the presence of a large sealing fleet in Bering Sea during the breeding season. Such report, recently forwarded by Messrs. Adams and Judge, the resident agents of the Treasury Department in charge, gives the number of dead pups upon each rookery to October 10, the total loss of young seals for both islands up to that time amounting to 28,066. Many weak and emaciated pups were observed on all the rookeries, and these have doubtless since died. Pup seals are very fat and can not be killed by starvation in less than a month's time. Although many thousands of young seals were lost by starvation in September and October, 1894, on account of sealing done in August, I found no dead pups until after September 1. From that time on, the death of the young was continuous.

The following summation of the loss for 1895 is accompanied by affidavits as to the correctness of the counts made:

Loss of young seals on the Pribilof Islands by starvation resulting from the killing of female seals in Bering Sea in 1895.

[Count in full to October 10, 1895.]

ST. PAUL ISLAND.		ST. GEORGE ISLAND.	
Ketavie rookery	857	Zapadnie rookery	2,083
Lukannon rookery	1,347	North rookery	1,559
Lagoon rookery	300	Starry Arteel rookery	1,131
Polavina rookery	1,970	East rookery	986
Garbotch rookery	1,514	Little East rookery	253
Reef rookery	3,376		
Upper Zapadnie rookery	5,231	Total	6,012
Lower Zapadnie rookery	381		22,054
Tolstoi rookery	2,582		
Northeast Point rookery	4,017	Grand total	28,066
Sea Lion Rock rookery	361		
Total	22,054		

Twenty dead bulls and 101 dead females were found on St. Paul Island during the season of 1895, 3 of the latter having spear points and lines attached.

The total number of seals taken in Bering Sea during the season by the pelagic sealing fleet was 43,697. There can be no doubt that at least 75 per cent of those were breeding females, the death of which would necessarily involve the loss of over 32,000 young. The proportion of the sexes represented in the season's catch, as reported by the sealing fleet, is untrustworthy, judging from our experience with reports of this kind in the past and from what we know at present of the actual conditions.

RECOMMENDATIONS RESPECTING THE PRIBILOF ISLANDS.

Having already questioned the propriety of the driving and culling of seals by the lessees upon the islands, it is unnecessary to repeat the arguments against the practice. No further culling should be permitted. It would be preferable to kill a larger quota consisting of several grades of skins, taking all that might be driven, rather than to continue the selection of a single grade necessitating the excessive handling of the animals now practiced.

Should a sealing fleet be present in Bering Sea during the season of 1896, the removal of all surplus males, except yearlings and large bulls, would be desirable. While increasing the quota of Government skins and lowering the value of the pelagic catch, it would also have the effect of limiting the pelagic catch entirely to females. The number of females is now so limited that no profit will be found in taking them at sea, where they will be so scattered as to discourage pelagic sealers and to some extent shorten the season of their operations.

Another method, suggested by Mr. F. W. True, of reducing the pelagic catch to an appreciable degree might be found in retaining all non-breeding males upon the islands after August 1. Commencing about the 20th of July, all males appearing upon the hauling grounds, and rejected from the drives, could be placed in the larger inland lakes and held captive there for six weeks or more. A solution of the pelagic sealing question might be found in the branding of nursing females in such a manner as would destroy the value of skins, while the question of property recognition upon the high seas might be well worth raising.

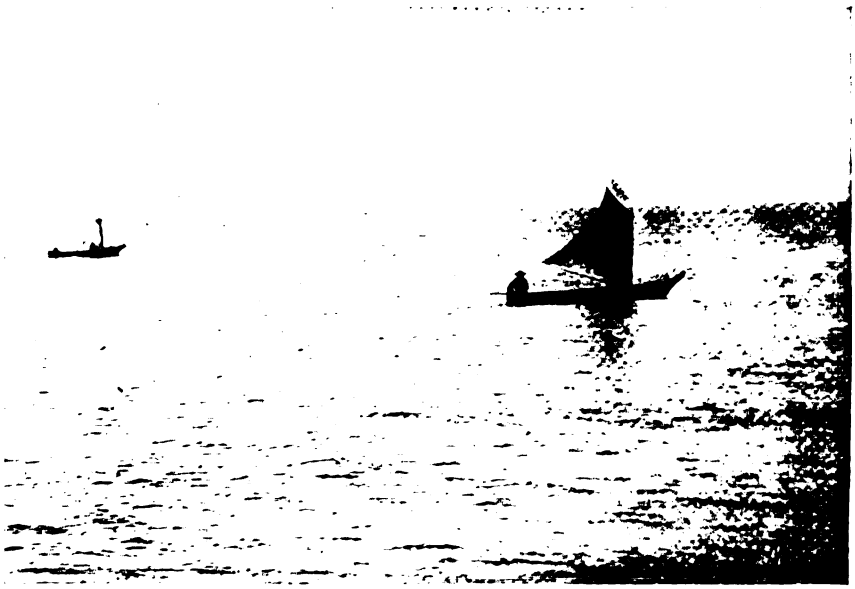
Any action on the part of the authorities directed toward the killing of female seals on the rookeries, for any purpose whatsoever, would be deplorable. Nothing can justify the destruction of the source of supply of anything useful to mankind.

REPORT ON PELAGIC SEALING IN 1895.

The following report embraces the results of observations made at sea between August 9 and 30, 1895, in connection with the fishery investigations of the Fish Commission steamer *Albatross*, and subsequently at Victoria, British Columbia, Seattle and Port Townsend, Wash., between September 25 and October 18. The work at sea consisted in boarding such vessels as were met with for the purpose of making inquiries as to the number of seals taken, the positions where taken, their sex, age, food, etc.

The perfecting of United States customs regulations providing for the collecting of sealing data by American vessels left comparatively little work to be done at sea. The examination of a considerable num-

CANADIAN SEALING SCHOONER E. B. MARVIN, BERING SEA.



SEALING CANOES UNDER SAIL, BERING SEA.

ber of carcasses of fur seals procured from sealing vessels during the month of August indicated that the species breed annually from the third year. It also yielded information on the sex of seals taken at sea and the character of their food, which appears to be pollock, squid, small fishes, and other surface life chiefly.

Upon the return of the *Albatross* to Puget Sound, I began boarding the vessels of the sealing fleet as fast as they returned. The catch for the year on the different sealing grounds was ascertained, and a number of log books kept during former sealing voyages and containing information on the seasonal migrations of the fur seal were collected.

During the months of August and September, 1895, there were engaged in sealing in Bering Sea 39 Canadian and 18 American vessels, the former making a catch of 35,773, and the latter a catch of 7,924 seals.

During the same period in 1894 a fleet of 38 vessels took 31,542 seals, while the total Bering Sea catch for 1895 (43,697 seals) required a fleet of 57 vessels, making a lower average per vessel, although a comparison of the log books of the American fleet for the two seasons shows the sealing weather to have averaged better in 1895, seals having been taken every day during the month of August.

The total number of Canadian and American vessels that engaged in pelagic sealing during the year was 96. The catch of seals from the Pribilof herd was 55,664, and that from the Russian herd 38,732, the total being 94,396. Less than one-third of the entire catch was made by American vessels, while the proportion of the American catch in Bering Sea is comparatively insignificant, the bulk of the American catch for the year having been made on the Japan coast.

The operations of the sealing fleet in Bering Sea in 1895 were in the same locality as in 1894, the catch as a whole having been made southeast, south, southwest, and west of the Pribilof Islands, outside the protected zone.

The sealing ground, platted upon a map prepared from positions obtained from a large number of sealing vessels, appears as a nearly semicircular belt about 60 miles in width, commencing to the northwestward of the Pribilofs and extending southward and eastward around the protected area, widening somewhat toward the southeastward limit, where seals were taken nearer the Aleutian Islands.

The condition of the American seal herd is now very critical. Should no changes be made during the present winter affecting the work of the great pelagic sealing fleet, the herd breeding on the Pribilof Islands will, by reason of sealing in Bering Sea during the coming season, be reduced to a comparatively insignificant size, so small, at least, as to ruin the seal fishery commercially at sea as well as upon land.

At a meeting of Canadian sealers recently held at Victoria it was decided that but one cruise be made during the year 1896, that to be in Bering Sea. The Northwest coast catch for the spring of 1895 proved unprofitable, but one vessel having made expenses, while the catch in Japanese and Russian waters was made barely remunerative by reason of an advance in the price of seal skins. This action on the part of the sealers is clearly the result of diminished catches. It is now evident to all persons interested in the pelagic sealing industry that further profit can not be expected from sealing in the North Pacific. That the sealing fleet as a whole after one more season's work in Bering Sea will be out of employment can not be doubted.

The condition of the seal herd breeding upon the Commander Islands is similar to that of the American herd. With the inauguration of the

restrictions of the modus vivendi, the destructive operations of the pelagic sealing fleet, so long directed chiefly against the American herd, were suddenly transferred to the Russian herd, and from that time its decimation has been rapid, the slaughter extending annually, from the latitude of Yokohama, in winter, to within 30 miles of the Commander Islands, in summer. The catch for 25 Canadian vessels in 1895 was 18,686 skins, as compared with a catch of 56,430 skins in 1894 by the same number of Canadian vessels. The total pelagic catch from the Russian herd for 1895 was only 38,732 as compared with a catch of about 82,000 in 1894.

A minute inspection of the rookeries on the Commander Islands during the past season revealed such a reduction in the breeding portion of the seal herd as to render immediate restrictions on pelagic sealing necessary, if anything more than a mere nucleus of the Russian herd is to be preserved.

PROPORTION OF SEXES IN THE PELAGIC CATCH.

This subject having been commented upon very fully in the report for 1894, further discussion as to the proportion of male and female seals killed by pelagic sealing seems unnecessary. Sealers detecting the danger of restrictions that might follow a discovery of the great preponderance of females in pelagic catches have in numerous cases misrepresented the facts. American inspectors of seal skins have found the reports made by masters of sealing vessels on this point to be subject to correction in cases too numerous to mention. There being no official inspection of the Canadian catch, the reports of masters are necessarily accepted for record. Canadians are the chief offenders, American sealers having in mind the customs inspections that accompany the landing of their catches. The American catch is reported (with custom-house corrections) to consist of three times as many females as males, no vessel reporting more males than females. The Canadian returns represent the numbers as more nearly equal, no official inspection of catches being made, although 11 vessels state their catches as chiefly male.

The following examples illustrate the differences usually found between the reports made by masters of vessels and those made by inspectors of seal skins:

Vessel.	Males.	Females.
Schooner Ecrett:		
Master's report	65	84
Official examination	9	90
Schooner Decahka:		
Master's report	39	43
Official examination	20	62
Schooner Bering Sea:		
Master's report	76	104
Official examination	35	145
Schooner Matilda:		
Master's report	13	22
Official examination	5	35
Schooner Erland:		
Master's report	82	82
Official examination	33	132

Discrepancies were found in nearly all the log books in the fleet. The skins were identified in the presence of the masters and others, who acquiesced in the identification as they were tallied. In all cases

of uncertainty the master's report was given the benefit of the doubt. As a result of the corrections made in the masters' reports of the spring catch for 1895, the records of the Bering Sea catch, made a few months later, were kept more carefully. There being still considerable misrepresentation, masters of vessels, when licensed for sealing, should be cautioned against making incorrect returns, for which the authorities should accept no excuse. The facts of the case are apparent. The skinning of seals in canoes by Indians makes the tally of the sexes of skins thrown on the decks of sealing vessels after nightfall uncertain, while the falsity of all statements of a majority of males is self-evident. It could be demonstrated in many ways. Take, for example, the well-known conditions existing on the Pribilof Islands; the breeding males do not leave the islands—in fact, do not enter the water—during the breeding season, while the surplus males resulting from the polygamous nature of the seal have always been in large part removed by annual killings upon the islands. Females must, therefore, necessarily constitute the great bulk of the pelagic catch. Out of a total of 123 seals examined at random by me upon the decks of sealing vessels in Bering Sea during the past season, 106 were females, or five-sixths of the whole number. The starvation of young seals upon the rookeries that follows the operations of the sealing fleet in Bering Sea is also evidence as to the sex of the seals killed. The loss of young seals up to October 10 is reported to be 28,066 by actual count, while many were then found in a dying condition.[1]

SEX, AGE, PREGNANCY, AND FOOD OF FUR SEALS TAKEN IN BERING SEA DURING AUGUST, 1895.

During the cruise of the steamer *Albatross* on the pelagic sealing grounds in August, 1895, many carcasses of fur seals, obtained from day to day from vessels engaged in sealing, were examined with reference to their age, sex, breeding condition, and food. Such carcasses were readily secured from schooners after the return of the hunting boats, while the evening work of skinning was going on, and all of those obtained were conveyed to the laboratory of the *Albatross* for dissection and examination. Of a total of 123 so examined in different localities from August 11 to 21, 106 were of female seals. Of the latter number 78 were nursing females, all determinations being based on examinations of mammary glands, uteri, and ovaries. Of the remaining females, 26 in number, 15 were yearlings and 11 were 2 years old. Of the males, 17 in number, 2 were yearlings, 4 were 2 years old, 8 were 3 years old, and 3 were 4 years old. Nearly five-sixths of the whole number being females, and nearly four-fifths of these being females in milk, the heavy drain made by pelagic sealing upon the producing class of seals is apparent.

Only one of the 15 yearling females bore signs of recent impregnation, and this one, taken for a yearling on account of its small size, may have been 2 years old. Four of the 2-year-old females were pregnant, one showing the corpus luteum in the right and the others in the left ovary. The breeding season not being over, the other 2-year-old females may have been impregnated later. A few nursing females not bearing marks of present pregnancy may have been impregnated and

[1] As this report goes to press I am officially informed that the sealing schooner *Penelope* on February 29, 1896, entered at San Francisco a catch of 215 seals, of which only 8 were males, all the rest—207—being females. The catch was made from January 24 to February 26, between the Farallone Islands and Point Conception, Cal., at distances averaging 25 miles off shore.—C. H. T., March 12, 1896.

the corpus luteum not yet developed. From these studies, the first of the kind, it would appear that female fur seals are first impregnated at the age of 2 years, and bear their first young at the age of 3. It is also apparent that nursing females are already pregnant when they begin feeding at sea. In all cases in which the condition of the uteri and ovaries could be made out with certainty it was found that pregnancy occurs annually and in the right and left horns of the uterus alternately. Some of the nursing females examined were, from the appearance of their teeth, judged to be very old. These observations, apparently demonstrating a wonderful regularity in the breeding of the seal, are of special importance in calculating the length of time that would be required for the restoration of the Pribilof rookeries if complete protection could be secured for female seals of all classes.

Of 123 stomachs of seals examined, 49 were empty or contained merely abdominal worms or bloody mucus. Of 73 with food, 46 contained chiefly squid, 23 pollock or cod, while 4 contained salmon. The majority had mixed with the squid or larger fishes the bones of very small fishes resembling sand lants or tomcod—perhaps the young of pollock or cod.

These examinations of seals taken off soundings at different times and places indicate that seals find plenty of food beyond the great fishing banks; that squid is the favorite food; that pollock and small fishes come next, while salmon and cod rank last, at least in this part of Bering Sea.

The catches of seals for 1894 and 1895 were made for the most part off soundings.

Table showing the results of observations made on fur seals taken at sea in Bering Sea, August 11 to 21, 1895, respecting sex, age, pregnancy, and food.

SCHOONER M. M. MORRILL.

[Latitude, 55° 12′ north; longitude, 170° 25′ west. Date, August 11.]

Serial number.[a]	Sex.	Age.	Uterus, horn showing former pregnancy.	Ovaries.		Stomach contents.
				Scar resulting from former pregnancy (corpus albicans).	Sign of recent impregnation (corpus luteum).	
	Male	3 years				Small quantity of small fish and squid.
	Female	1 year				Do.
	do	2 years				Do.
	do	1 year				Small quantity of small fish and squid (sand lants?).
	do	Nursing	Right	Right	Left	Small quantity squid beaks.
	do	do	do	do	do	Squid; small fish.
	do	do	Left	Left	Right	Do.
	do	do	Right	Right	Left	Two pollock.
	do	do	Left	(?)	Right	Empty.
	do	do	Right	Right	Left	One squid.
	do	do	do	do	do	Empty.
	do	do	(?)	(?)	do	Squid.
	do	do	Left	Lost	Lost	Empty.
	do	do	do	do	do	Pollock; squid beaks.
	do	do				Empty.
	do	do				Small fish; squid.
	do	do	Right	Right	Left	Small squid.

[a] Serial number used only where specimens were saved.

Table showing the results of observations made on fur seals taken at sea in Bering Sea, August 11 to 21, 1896, respecting sex, age, pregnancy, and food—Continued.

SCHOONER VERA.

[Latitude, 54° 54′ north; longitude, 168° 55′ west. Date, August 12.]

Serial number.[a]	Sex.	Age.	Uterus, horn showing former pregnancy.	Ovaries.		Stomach contents.
				Scar resulting from former pregnancy (corpus albicans).	Sign of recent impregnation (corpus luteum).	
	Female	1 year				Empty.
	do	Nursing	Left	Left	Right	Worms.
	do	2 years				Three squid; small fish.
	do	Nursing	Right	Right	Left	Four squid beaks.

SCHOONER ENTERPRISE.

[Latitude, 54° 54′ north; longitude, 168° 49′ west. Date, August 12.]

	Female	Nursing	Left	(?)	Right	Many small squid beaks.
	do	2 years			Left	Squid; very small fish.
	do	Very old	Right	Right	(?)	Do.
	do	Nursing	do	(?)	Left	Squid; few small fish.
	Male	1 year				Squid, tentacles 3 inches long.
	do	3 years				Few squid beaks, pollock.?
	do	2 years				Squid; very small fish.
	do	3 years				One squid; many small fish.

SCHOONER MAUD S.

[Latitude, 54° 49′ north; longitude, 168° 45′ west. Date, August 12.]

	Male	2 years				Empty.
	do	3 years				Do.
	do	do				Do.
	do	do				Do.
	Female	2 years				Small squid.
	do	do				Empty.
	do	do				Do.
	do	Nursing	Right	Right	Left	Do.
	do	Virgin				Do.
	do	Nursing	Right	Right	(?)	Do.
	do	2 years				Squid.
	do	Nursing	Right	Right	Left	Bones of pollock; squid beaks.
	do	3 years				Do.

SCHOONER VICTORIA.

[Latitude, 55° 21′ north; longitude, 167° 49′ west. Date, August 20.]

1	Female	1 year				Empty.
2	do	Nursing	Left	Left	Right	Squid, small fish, pollock.
3	do	1 year				Empty.
4	do	do				Blood.
5	do	Nursing	Right	(?)	Right	Squid, small fish, large fish (cod).
6	do	do	Left	Left	do	Squid, small fish, pollock.
7	do	2 years				Do.
8	do	Nursing	Left	Left	Right	Blood.
9	do	do	do	do	do	Squid; small fish.
10	do	do	do	do	do	Cod.
11	do	do	Right	Right	Left	Empty.
12	do	do	do	do	do	Squid; small fish (cod?).
13	do	do	Left	Left	Right	Do.
14	do	1 year				Empty.
15	do					Do.

[a] Serial number used only where specimens were saved.

Table showing the results of observations made on fur seals taken at sea in Bering Sea, August 11 to 21, 1895, respecting sex, age, pregnancy, and food—Continued.

SCHOONER TRIUMPH.

[Latitude, 55° 21′ north; longitude, 167° 49′ west. Date, August 20.]

Serial number.	Sex.	Age.	Uterus, horn showing former pregnancy.	Ovaries.		Stomach contents.
				Scar resulting from former pregnancy (corpus albicans).	Sign of recent impregnation (corpus luteum).	
16	Female	1 year				Small-fish bones.
17	do	Nursing	Left	Left	Right	Small-fish bones; squid.
18	do	2 years			Left	Salmon.
19	do	Nursing	Right	Right	do	Small fish.
20	do	do	do	do	do	Empty.
21	do	do	do	(?)	do	Do.
22	do	do	do	Right	do	Pollock (?).
23	Male	2 years				Empty.
24	do	4 years				Do.
25	Female	Nursing	Left	Lost	Right	Do.
26	do	do	do	Left	(?)	Squid; small fish.
27	do	do	do	(?)	Right	Do.
28	Male	2 years				Do.
29	Female	Nursing	Left	Left	Right	Small fish.
30	Male	1 year				Empty.
31	Female	Nursing	Left	Left	Right	Do.
32	do	do	Lost	Lost	Lost	Do.
33	do	do	do	do	do	Do.
34	do	do	Left	(?)	Both	Cod (?).
35	do	do	do	Left	Right	Salmon.
36	do	2 years			Left	Squid; small fish.
37	do	Nursing	Right	Right	do	Empty.
38	do	1 year				Do.
39	do	Nursing	Left	Left	Right	Do.
40	do	do	Right	Right	Left	Do.
41	do	do	Left	Left	Right	Salmon, cod.
42	do	do	Right	Right	Left	Squid; small fish.
43	do	do	Right (?)	(?)	do	Empty.
44	do	do	Right	Right	do	Blood.
45	do	2 years			do	Empty.
46	do	Nursing	Right	Right	do	Pollock.
47	do	do	do	do	do	Empty.
48	do	1 year				Squid.
49	do	2 years				Small squid, worms.
50	do	Nursing	Right	(?)	Left	Empty.
51	Male	3 years				Small fish; squid.
52	Female	Nursing	(?)	(?)	Right	Do.
53	do	do	Right	(?)	Left	Squid.
54	do	do	do	Right	do	Small fish.
55	Male	4 years				Squid, pollock.
56	Female	1 year				Empty.
57	do	Nursing	Left	Left	Right	Small fish, squid, worms.
58	do	do	do	do	do	Empty.
59	Male	4 years				Do.
60	Female	Nursing	Left	(?)	Right	Bones of pollock.
61	do	1 year				Empty.
62	Male	3 years				Do.
63	Female	Nursing	Right	Right	Left	Bones of fish.
64	do	do	Left	Left	Right	Blood.
65	do	do	Right	Right	(?)	Pollock bones.
66	do	1 year				Empty.
67	do	Nursing	Right	Right	Left	Squid.

Table showing the results of observations made on fur seals taken at sea in Bering Sea, August 11 to 21, 1895, respecting sex, age, pregnancy, and food—Continued.

SCHOONER G. W. PRESCOTT.

[Latitude, 55° 33′ north; longitude, 168° 11′ west. Date, August 21.]

Serial number.	Sex.	Age.	Uterus, horn showing former pregnancy.	Ovaries.		Stomach contents.
				Scar resulting from former pregnancy (corpus albicans).	Sign of recent impregnation (corpus luteum).	
68	Female	Nursing	Left	Left	Right	Squid, small fish.
69	do	do	do	do	do	Empty.
70	do	do	do	do	do	Minute squid beaks, worms.
71	do	do	Right	(?)	Left	Small squid.
72	do	do	do	Right	do	Pollock or cod.
73	do	do	do	do	(?)	Empty.
74	do	do	do	(?)	Left	Squid, fish bones (pollock?).
75	do	do	Left	(?)	Right	Empty.
76	do	do	Right	Right	Left	Three cod.
77	do	do	do	do	(?)	Cod or pollock.
78	do	do	do	do	(?)	Cod.
79	do	do	do	do	(?)	Salmon.
80	do	do	do	do	(?)	Cod.
81	do	do	Left	Left	(?)	Two cod.

Seals examined	123	Female 2 years	11
Male	17	Male yearling	2
Female	106	Male 2 years	4
Female nursing	78	Male 3 years	8
Female yearling	15	Male 4 years	3

Nursing females 3 years of age or over.
Corpus albicans, the scar indicating ovary from which former pregnancy resulted.
Corpus luteum, the sign of pregnancy or recent ovulation from that ovary.
In these observations only the gross appearance of ovaries is considered; impregnation may have taken place in all the 2 and 3 year old females, and the corpus luteum not yet developed.

LIST OF PHOTOGRAPHS ILLUSTRATIVE OF PELAGIC SEALING.

[Photographs by N. B. Miller, C. H. Townsend, and A. B. Alexander.]

A portion of the sealing fleet at Sand Point, Alaska, in June, 1893.
Canadian sealing schooner *E. B. Marvin*. Bering Sea.
Canadian sealing schooner *Annie E. Paint*. Bering Sea.
Canadian sealing schooner *Dora Siewerd*. Bering Sea.
Canadian sealing schooner *Katherine*, formerly *Black Diamond*.
Canadian sealing schooner *Dora Siewerd* under storm canvas, showing manner of stowing canoes. 1895.
Deck of *Dora Siewerd*. 1895.
Skinning seals, *Dora Siewerd*. 1895.
Canadian sealing schooner seized in Bering Sea prior to 1888.
Canadian sealing schooner *Thornton* seized in Bering Sea prior to 1888.
Canadian sealing schooner *Aiwoko* discharging skins at Victoria.
American sealing schooner *Columbia*.
Types of sealing schooners. Victoria Harbor. 1894.
Types of sealing schooners. Victoria Harbor. 1894.
A portion of the Canadian sealing fleet, Victoria Harbor. 1894.
Sealing boats stored at Victoria.
Portion of Indian crew of Canadian schooner *Favorite*. 1894.
Indian hunter of sealing canoe, showing double-pointed spear pole; detaching spear points, with line 30 yards long; paddle; killing club, and wooden boat bailer.
Indian sealing canoe, showing manner of throwing spear.
Indian sealing canoe under sail.
Indian sealing canoe with outfit and catch.
Sleeping seal—usual position, floating back down, with hind flippers turned forward over belly. August 7, 1894. Bering Sea.
Fur seal just awakened.
Starved seal pups, St. Paul Island. September, 1894.
Starved seal pups, St. Paul Island. September, 1894.

Pelagic catch of the American sealing fleet for 1895.

Vessel.	Hunters.		Bering Sea.			Japan coast.			Russian coast.			Northwest coast.		
	White.	Indian.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Ida Etta	24							564			484			
M. M. Morrill	5		102	291	393			591						
Allie I. Algar	7		20	173	193	723	381	1,004						
Deeahks		20	141	451	592							20	62	82
W. Ainsworth	5		117	323	440			1,180			61			
J. G. Swan		21	212	872	1,084							68	156	224
Stella Erland	8	16	203	473	676							33	132	165
G. W. Prescott	4	5	141	188	329									
Bering Sea	4	20	165	498	663							35	145	180
E. E. Webster	6		66	205	271			766						
Columbia	1	10	163	381	544							153	216	369
Louis Olsen					340			660						
Therese	7		96	330	426			389						
Emma Louisa	8		108	399	507			350						
Rattler	6		102	390	472	225	351	576						
J. Eppinger	7		113	339	452			785						
Herman	7		103	327	430			637						
Bonanza	10		93	196	289			926						
Alton	6		44	98	142			315						
Winchester	7							589			102			
Bowhead	6					263	421	684						
Jane Grey	5							1,112	43	139	185			
S. Sutherland	6					35	264	309						
Mattie Dyer	6							651	44	90	149			
Penelope	4					164	208	274			98			
Idler	8											6	35	41
Matilda	3	12										5	30	35
Elsie	8	11										84	125	209
Puritan		14										4	6	10
Emmett Felitz	1	17										9	40	49
C. C. Perkins		17										8	26	34
August		13										2	4	6
R. Ecrett	3	13										9	90	99
Teaser	3	20										27	60	87
Jessie	7												24	24
Kate and Ann														391
Total			1,989	5,935	7,924			12,362			1,079	463	1,151	2,005

Pelagic catch of the Canadian sailing fleet for 1895.

Vessel.	Hunters.		Bering Sea.			Japan coast.			Russian coast.			Northwest coast.		
	White.	Indians.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Mary Ellen		20	106	356	462			777			190			
Pioneer	24							845			790			
Wanderer		10	197	159	356									
Libbie		21	451	1,016	1,467							182	52	234
Agnes McDonald	8	14	593	669	1,262			711						
Maud S		32	750	642	1,392							185	102	287
Minnie		18	266	393	659									
Annie E. Paint	26		191	575	766			1,121			135			
Sadie Turpel	19							798			470			
Borealis	21		96	641	737			733			110			
Triumph		43	862	995	1,857									353
Mermaid	24							1,156			753			
Ocean Belle	23							1,056			562			
Arietis	22							680			426			
Katherine		21	288	403	691									159
San Diego	17							370			243			
Mary Taylor	18								128	306	434			369
C. G. Cox	26		176	449	625			906			22			
Umbrina	25							1,187			562			
Casco	19							1,309			351			
Viva	23							601			397			
Geneva	29							1,187			470			
Brenda								881			15			

Pelagic catch of the Canadian sailing fleet for 1895—Continued.

essels.	Hunters.		Bering Sea.			Japan coast.			Russian coast.			Northwest coast.		
	White.	Indians.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
.....	19	....	177	272	449	....	....	856	....	....	15	....	....	....
.....	19	....	....	....	....	....	....	872	....	....	292	....	....	....
.....	18	....	....	....	....	....	....	....	....	....	219	....	....	....
arvin.....	27	....	125	251	376	....	....	946	....	....	10	....	....	....
r.....	23	....	317	300	617	....	....	....	60	11	71	....	....	....
ta.....	....	8	45	156	201	....	....	....	....	....	....	....	....	....
eward.....	....	36	766	813	1,577	....	....	....	....	....	....	287	216	503
.....	....	25	601	566	1,167	....	....	....	....	....	....	96	91	187
or	....	11	107	152	259	....	....	....	....	....	....	32	19	51
.....	....	32	432	364	796	....	....	....	....	....	30	....	....	285
e	....	24	238	532	770	....	....	....	....	....	....	....	....	....
e.....	....	37	827	956	1,783	....	....	....	....	....	....	134	33	167
ich.....	....	24	678	534	1,212	....	....	....	....	....	....	....	....	145
.....	....	26	479	515	994	....	....	....	....	....	....	215	100	325
oore.....	....	30	730	812	1,542	....	....	....	....	....	....	64	41	105
nith.....	....	41	564	594	1,158	....	....	....	....	....	....	216	79	285
.....	....	22	186	527	713	....	....	....	....	....	....	57	50	107
.....	7	16	126	223	349	....	....	787	....	....	168	....	....	....
lsen.....	....	....	....	....	....	....	....	627	....	....	....	....	....	....
nd Hattie..	9	24	648	519	1,167	....	....	....	....	....	....	139	8	147
.....	8	17	335	532	867	....	....	....	....	....	....	42	60	102
and.....	7	16	182	459	641	....	....	....	....	....	....	107	36	143
ass.....	6	21	269	432	701	....	....	....	....	....	....	152	105	257
rise	7	30	947	782	1,729	....	....	....	....	....	....	166	55	221
e (Shang-	5	28	608	838	1,446	....	....	....	....	....	....	156	74	230
e (Vancou-	....	18	93	109	202	....	....	....	....	....	....	....	....	....
.....	6	28	460	316	776	....	....	....	....	....	....	....	....	248
.....	6	21	279	394	673	....	....	....	....	....	....	86	95	181
e.....	5	20	318	251	569	....	....	....	....	....	....	....	....	143
e.....	5	36	927	720	1,647	....	....	....	....	....	....	....	....	150
lle	7	28	437	676	1,113	....	....	....	....	....	....	179	55	234
ir	2	14	....	....	....	....	....	....	....	....	....	45	20	65
Maid	1	12	....	....	....	....	....	....	....	....	....	66	43	109
y.....	3	8	....	....	....	....	....	....	....	....	....	8	7	15
in Chief....	2	16	....	....	....	....	....	....	....	....	....	6	33	39
illis	....	14	....	....	....	....	....	....	....	....	....	45	26	66
.....	10	....	....	....	....	....	....	....	....	....	....	....	....	124
canoe catch	....	....	....	....	....	....	....	....	....	....	....	....	....	3,787
Bend.....	4	10	....	....	....	....	....	....	....	....	....	37	111	148
otal	....	....	15,877	19,896	35,773	....	....	18,686	....	....	6,605	....	....	9,972

SUMMATION OF THE PELAGIC CATCH FOR 1895.

	Pribilof Islands herd.			Commander Islands herd.			Grand total.
	Northwest coast.	Bering Sea.	Total.	Japan coast.	Russian coast.	Total.	
an vessels.....	9,972	35,773	45,745	18,686	6,605	25,291	71,036
an vessels	2,005	7,924	9,929	12,362	1,079	13,441	23,370
otal.....	11,977	43,697	55,674	31,048	7,684	38,732	94,406

Table showing number of days during month of August, 1894, when pelagic sealing was carried on in Bering Sea, as indicated by log entries of a majority of the vessels of the sealing fleet.

Date.		Vessels.
Aug.	1	Mascot, Borealis, Earle, Favorite, Rich, Minnie, Etta, and Beatrice.
	2	Mascot, Therese, Etta, Triumph, Sapphire, Moore, and Katherine.
	3	Mascot, San Jose, Borealis, Earle, Favorite, Rich, Therese, Minnie, Etta, Columbia, Beatrice, and Fawn.
	4	Jose, Borealis, Earle, Favorite, Rich, Therese, Minnie, Etta, Columbia, Beatrice, Fawn, and L. Olsen.
	5	Jose, Borealis, Favorite, Rich, Erland, Minnie, Etta, Columbia, Beatrice, and Fawn.
	6	Jose, Ellen, Earle, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Columbia, Fawn, and L. Olsen.
	7	Ellen, Borealis, Earle, Favorite, Therese, Decahks, Minnie, Etta, Columbia, Beatrice, Fawn, and L. Olsen.
	8	Jose, Borealis, Ellen, Favorite, Kilmeny, Therese, Decahks, Erland, Minnie, Columbia, and Beatrice.
	9	Mascot, Borealis, Kilmeny, Decahks, Columbia, Beatrice, Fawn, and Johnson.
	10	Jose, Borealis, Ellen, Earle, Mascot, Favorite, Rich, Kilmeny, Decahks, Minnie, Columbia, Beatrice, Fawn, Johnson, and L. Olsen.
	11	Jose, Borealis, Ellen, Favorite, Kilmeny, Therese, Decahks, Minnie, Etta, Sparks, Beatrice, Fawn, Johnson, and L. Olsen.
	12	Jose, Borealis, Rich, Kilmeny, Erland, Minnie, Beatrice, and Johnson.
	13	Rosie Olsen, Jane Grey, Aristis, Vera, Sapphire, and Aurora.
	14	Borealis and Decahks.
	15	Borealis, Favorite, Grey, Rich, Decahks, Minnie, Beatrice, Algar, Johnson, and Sparks.
	16	R. Olsen, Rich, Decahks, Erland, Minnie, and Fawn.
	17	R. Olsen, Grey, Kilmeny, Minnie, Columbia, and Beatrice.
	18	Borealis, R. Olsen, Earle, Favorite, Grey, Rich, Kilmeny, Decahks, Erland, Minnie, Etta, Beatrice, Henrietta, Algar, Fawn, Johnson, and Sparks.
	19	Favorite, Rich, Kilmeny, Decahks, Minnie, Etta, Columbia, Henrietta, Beatrice, Algar, Johnson, and Sparks.
	20	Kilmeny.
	22	Ellen, R. Olsen, Earle, Favorite, Grey, Kilmeny, Decahks, Erland, Minnie, Etta, Algar, and Fawn.
	23	Favorite, Rich, Kilmeny, Therese, Decahks, Minnie, Etta, Columbia, Beatrice, Algar, Fawn, Johnson, and Sparks.
	24	Favorite, Rich, Kilmeny, Therese, Decahks, Minnie, Etta, Columbia, Henrietta, Algar, Johnson, and Sparks.
	25	Rich, Kilmeny, Erland, Minnie, Beatrice, and Sparks.
	26	Grey, Rich, Kilmeny, Decahks, Minnie, and Etta.
	27	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Beatrice, Algar, Fawn, and Johnson.
	28	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Columbia, Henrietta, Beatrice, Algar, Fawn, Johnson, and Sparks.
	29	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Columbia, Henrietta, Beatrice, Algar, Fawn, Johnson, and Sparks.
	30	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Henrietta, Beatrice, Algar, Fawn, Johnson, and Sparks.
	31	Grey, Rich, Kilmeny, Decahks, Erland, Minnie, Etta, Columbia, Beatrice, Henrietta, Algar, Fawn, Johnson, and Sparks.

Table showing number of days from September 1 to 21, 1894, when pelagic sealing was carried on in Bering Sea, as indicated by log entries of a majority of the vessels of the fleet.

Date.		Vessels.
Sept.	1	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Columbia, Etta, Beatrice, Henrietta, Algar, Fawn, Johnson, and Sparks.
	2	Grey, Rich, Kilmeny, Therese, Decahks, Erland, Minnie, Etta, Columbia, Beatrice, Henrietta, Algar, Fawn, Johnson, and Sparks.
	3	Therese, Columbia, and Katherine.
	4	Triumph, Sapphire, Borealis, Ainoko, and Kate.
	5	Rich, Columbia, Beatrice, Henrietta, Algar, Fawn, Johnson, and Sparks.
	6	Beatrice, Henrietta, Fawn, and Sparks.
	7	Erland, Henrietta, Algar, Fawn, Etta, Decahks, and Johnson.
	8	Beatrice, Erland, Etta, Decahks, Johnson, and Therese.
	9	Columbia, Beatrice, Fawn, Etta, Decahks, Johnson, and Therese.
	10	Columbia, Beatrice, Erland, Fawn, Decahks, and Therese.
	11	Sapphire and San Jose.
	12	Erland, Fawn, Decahks, and Mascot.
	13	Columbia, Beatrice, Fawn, Decahks, and Johnson.
	14	Beatrice, Erland, Fawn, and Decahks.
	15	Beatrice, Erland, Fawn, Decahks, and Johnson.
	16	Beatrice, Etta, Kate, Saucy Lass, and Beatrice.
	17	Beatrice, Etta, Shelby, Ainoko, and Beatrice.
	18	Beatrice, Etta, Venture, Saucy Lass, and Beatrice.
	19	Etta, Shelby, Beatrice, Sapphire, and Rosie Olsen.
	20	Etta, Shelby, and Rosie Olsen.
	21	Etta.

ble showing number of days during month of August, 1895, when pelagic sealing was carried on in Bering Sea, as indicated by log entries of a majority of the vessels of the sealing fleet.

Date.	Vessels.
ug. 1	Rattler, Maud S., M. M. Morrill, Enterprise, Vera, Victoria, Triumph, G. W. Prescott, Columbia, Decahks, J. G. Swan, Bering Sea, Stella Erland, J. Eppinger, Herman, and Dora Sieward.
2	Rattler, Maud S., Enterprise, Vera, Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, J. Eppinger, Herman, and Dora Sieward.
3	Maud S., Enterprise, Vera, Victoria, Triumph, Columbia, J. G. Swan, Bering Sea, Stella Erland, Alton, and Dora Sieward.
4	Rattler, Maud S., M. M. Morrill, Enterprise, Vera, Victoria, Triumph, Columbia, Decahks, Allie Algar, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, J. Eppinger, and Dora Sieward.
5	Borealis, M. M. Morrill, Victoria, Triumph, Columbia, Decahks, Allie Algar, and Stella Erland.
6	Bering Sea.
7	Maud S., Borealis, Vera, and Decahks.
8	Maud S., Victoria, Columbia, Decahks, J. G. Swan, Bering Sea, Stella Erland, Louisa, and Rattler.
9	Maud S., Borealis, M. M. Morrill, Enterprise, Vera, Victoria, Triumph, Decahks, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, E. E. Webster, Bonanza, J. Eppinger, Rattler, and Dora Sieward.
10	Maud S., M. M. Morrill, Enterprise, Vera, Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, and Therese.
11	Maud S., Enterprise, Vera, Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, J. Eppinger, and Therese.
12	Maud S., Vera, Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, and Therese.
13	Triumph.
14	Victoria, Triumph, Decahks, M. M. Morrill, Willard Ainsworth, J. G. Swan, Louisa, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
15	Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, and Herman.
16	Louisa, J. Eppinger, and Dora Sieward.
17	Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, and Herman.
18	Triumph, G. W. Prescott, Decahks, Louisa, E. E. Webster, Alton, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
19	Victoria, Triumph, G. W. Prescott, Columbia, Willard Ainsworth, J. G. Swan, Stella Erland, Louisa, J. Eppinger, Therese, Herman, and Dora Sieward.
20	Victoria, Triumph, G. W. Prescott, Columbia, Decahks, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, and Herman.
21	Columbia, Decahks, G. W. Prescott, Allie Algar, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
22	G. W. Prescott, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
23	Bering Sea, Stella Erland, Louisa, Therese, and Herman.
24	Columbia, G. W. Prescott, Allie Algar, M. M. Morrill, Willard Ainsworth, Stella Erland, E. E. Webster, Alton, J. Eppinger, Rattler, and Dora Sieward.
25	Allie Algar, Louisa, J. Eppinger, Therese, Rattler, and Herman.
26	Allie Algar, Columbia, M. M. Morrill, J. G. Swan, Bering Sea, Louisa, E. E. Webster, Alton, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
27	Decahks, G. W. Prescott, Allie Algar, Columbia, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
28	Decahks, G. W. Prescott, Allie Algar, Columbia, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Stella Erland, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
29	Bonanza.
30	Decahks and G. W. Prescott.
31	Decahks, G. W. Prescott, Columbia, J. G. Swan, Bering Sea, Alton, Bonanza, Herman, and Dora Sieward.

Table showing number of days from September 1 to 21, 1895, when pelagic sealing was carried on in Bering Sea, as indicated by log entries of a majority of the vessels of the sealing fleet.

Date.	Vessels.
Sept. 1	Deeahks, G. W. Prescott, Columbia, M. M. Morrill, Willard Ainsworth, J. G. Swan, Bering Sea, Louisa, E. E. Webster, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
2	Deeahks, G. W. Prescott, Columbia, M. M. Morrill, J. G. Swan, Bering Sea, Stella Erland, Louisa, Alton, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
3	G. W. Prescott, Allie Algar, Columbia, Bering Sea, and Louisa.
4	J. G. Swan and Bering Sea.
5	
6	Therese and Rattler.
7	Deeahks, Columbia, M. M. Morrill, Bering Sea, Stella Erland, Bonanza, and Dora Sieward.
8	Deeahks, G. W. Prescott, Columbia, M. M. Morrill, Willard Ainsworth, Bering Sea, Louisa, E. E. Webster, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
9	Deeahks, G. W. Prescott, Columbia, M. M. Morrill, Willard Ainsworth, Bering Sea, Stella Erland, Louisa, Bonanza, J. Eppinger, Therese, Rattler, Herman, and Dora Sieward.
10	Deeahks, G. W. Prescott, Columbia, M. M. Morrill, J. G. Swan, Bering Sea, Stella Erland, Louisa, Bonanza, Rattler, and Dora Sieward.
11	Deeahks, Columbia, and Bonanza.
12	G. W. Prescott.
13	Bering Sea, Louisa, and Herman.
14	
15	Deeahks, Bering Sea, Stella Erland, J. Eppinger, Rattler, and Dora Sieward.
16	Columbia, Bering Sea, and Stella Erland.
17	
18	Columbia, Louisa, and Rattler.
20	Stella Erland, Rattler, and Dora Sieward.
21	Bering Sea.

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken.

[Data collected by C. H. Townsend and A. B. Alexander.]

AMERICAN SCHOONER SAN DIEGO, D. McLEAN, MASTER—1883.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1883.	N.	W.		1883.	N.	W.	
Mar. 30	37 55	125 30	13	July 17	55 34	163 30	22
Apr.	47 22	127 24	29	19	55 40	169 12	.....
May	51 04	131 45	.....	—	55 00	169 00	288

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1884.

1884.	N.	W.		1884.	N.	W.	
Feb. 1, 2, 3	.....	.....	12	Apr. 7	47 43	127 43	18
5	38 53	.....	6	8	47 56	127 07	3
8	37 18	.....	7	10	47 33	125 44	48
9	39 30	124 40	4	11, 12, 14	.....	.....	11
18	38 13	128 54	.....	16	47 53	125 47	13
20	39 35	.....	6	18	48 04	126 13	11
21, 22, 23, 27, 28	.....	.....	35	19	47 57	127 10	33
29	42 02	.....	38	20	48 05	.....	13
Mar. 1	40 50	.....	21	24	50 12	128 30	14
2	.....	.....	21	25	49 55	128 50	3
3	42 14	.....	24	26	49 54	128 34	13
4	.....	.....	21	May 11	48 33	126 30	15
5	42 18	126 50	7	12	48 26	127 30	13
7	43 10	125 30	4	13	48 35	128 15	5
8	42 58	.....	23	14	49 15	127 50	25
12	44 29	125 48	12	22	48 40	127 30	6
13	44 48	126 12	3	23	48 30	127 45	14
14	44 50	125 39	23	24	48 28	129 30	3
15	44 22	125 31	16	25	50 31	131 40	7
16	45 54	124 50	19	July 1	55 50	166 50	3
17	46 38	126 00	8	2	.....	.....	4
19, 26, 27	.....	.....	21	8	56 30	167 30	13
28	47 37	126 06	12	9	56 00	167 50	23
29	47 39	125 58	4	10	55 10	167 35	16
30	47 43	126 00	23	13	55 50	167 47	7
31	47 10	125 00	14	14	55 50	168 35	44
Apr. 4	47 42	126 08	21	15	55 56	168 24	98
5	47 31	126 44	20	18	55 52	168 60	64
6	47 24	126 19	13	19	55 52	167 39	32

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken—Continued.

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1884—Continued.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1884.	N.	W.		1884.	N.	W.	
uly 21	55 30	168 00	22	Aug. 9	55 10	169 30	140
24	55 09	166 49	43	10	55 13	169 39	67
25	54 30	168 00	4	11	55 08	170 00	63
26	54 40	168 50	43	12	55 10	169 05	14
27	55 00	168 30	4	16	55 00	169 00	28
31	54 20	170 15	25	17	54 35	168 40	41
ug. 1	54 30	168 00	15	18	54 43	166 20	26
2	54 41	170 28	6	19	54 25	167 20	10
3	54 47	168 30	63	20	54 53	165 15	50
4	54 15	169 00	8	21	54 50	165 20	53
6	55 18	168 19	10	22	54 50	165 40	66
7	55 25	169 00	131	23 *a*			2
8	55 18	169 39	21				

a Bound for walrus.

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1885.

1885.	N.	W.		1885.	N.	W.	
an. 26	38 34	124 00	4	May 28	56 16	137 51	43
29	34 42	124 30	14	29	56 27	137 43	2
eb. 4	39 43	124 28	15	31			7
5	39 42	124 10	21	June 1	58 11	138 10	7
9	39 35	124 20	16	2	58 00	138 23	2
13	39 36	124 40	1	3	57 40	139 00	38
16	39 50	126 00	3	4	57 55	140 00	8
17			33	5	57 49	139 47	15
20	40 11		14	6	58 20	144 30	4
21	39 55	125 10	10	8	56 13	148 21	3
25			5	9	55 58	151 49	1
28	39 50	124 30	9	11	54 20	157 18	1
far. 1	39 38	125 55	7	12	53 50	158 10	43
6	38 57	124 25	29	15	53 37	162 33	3
7	39 00		39	16	53 30	164 30	20
8	41 20	125 35	3	19	53 00	167 00	14
9	42 50	124 40	3	26			1
11	43 02	125 00	45	30	55 40	165 17	1
12	43 07	125 40	26	July 1	56 17	168 23	31
14	43 19	125 00	27	2			1
15	43 50	125 00	9	4	56 19	168 17	39
17	44 54	125 15	2	8			1
18	45 09	125 15	8	9	56 51	169 07	10
19	45 40	124 30	11	10	55 45	167 45	15
20	45 40	125 00	13	12	55 26	168 48	94
21	46 00		2	13			1
24	46 51	124 50	3	14			1
25	46 57	125 30	18	15			26
26	47 25	125 30	14	16			14
27	47 46	125 00	15	17			5
28	47 40	125 12	12	18	55 46		33
29	48 05	125 30	18	19	55 28	169 10	75
30	48 00	125 30	8	20	55 26	169 02	7
31	48 10	125 30	4	24			8
pr. 1	48 42	125 30	2	26	55 00	169 04	50
3	47 44	125 27	11	27			2
4	48 14	126 25	12	28	55 14	168 04	67
6	48 01	126 50	15	29	55 10	168 07	43
10	48 10	126 40	1	30			32
11	49 00	127 00	13	31			23
16	48 20	126 15	1	Aug. 1	54 55	168 00	55
17	48 34		2	2	54 45	168 50	18
18			10	3	55 38	168 52	19
27			6	9	55 10	169 05	44
ay 11	49 00	127 00	6	12	55 08	168 18	39
12	49 23		4	14	55 20	170 15	20
15	49 24		13	15	55 20	170 15	47
17	50 30	129 20	3	16	55 26	169 00	41
19	51 37	130 37	7	17	53 30	169 30	9
20	52 12	132 48	17	18	54 00	168 10	23
21	52 39	132 50	5	19	54 24	168 00	83
22	54 32	133 58	3	20	54 41	167 40	2
24	56 20	137 00	4	21	55 18		24
25	56 39	137 10	26	22	54 43	166 30	21
26	56 45	137 51	8	23	54 40	166 20	25
27	56 34	137 56	19	24	54 40	166 20	7

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken—Continued.

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1885—Continued.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1885.	N.	W.		1885.	N.	W.	
Aug. 25	54 31	168 27	104	Aug. 30	54 22	169 10	21
26	54 26	168 23	72	Sept. 1	55 30	168 45	34
27	54 26	169 26	15	2	55 00	168 00	48
29	54 09	169 00	48	3	55 12	167 10	24

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1886.

1886.	N.	W.		1886.	N.	W.	
Feb. 3	39 00	124 10	1	June 1	56 41	128 50	139
7	40 00	124 50	10	2	56 38	129 00	151
8	40 10	125 27	9	3	56 50	128 29	44
9	39 35	125 00	4	6	57 50	129 55	95
11	40 01	124 40	3	7	57 40	139 35	125
17	38 31	124 08	36	8	57 36	139 57	197
18	38 33	123 50	44	9	57 31	140 41	170
19	38 30	123 47	29	10	57 09	140 48	171
20	38 35	.....	8	11	57 05	139 50	38
21	38 33	.....	4	12	57 10	139 40	12
Mar. 3	38 00	123 34	23	July 2	54 40	168 45	24
4	38 31	123 31	14	3	54 20	168 32	27
5	38 48	123 50	11	8	54 45	168 35	157
7	39 47	124 23	2	12	55 04	169 25	70
9	40 27	125 00	5	13	55 03	169 42	120
15	40 40	124 48	21	15	54 58	168 10	69
24	46 15	125 26	5	17	55 04	169 33	87
25	.....	.....	1	18	54 50	168 50	96
28	47 45	125 31	24	21	54 58	170 28	51
29	47 51	125 11	26	22	54 36	170 40	135
30	48 00	125 20	9	24	54 45	168 30	74
31	47 52	125 00	9	25	54 51	.....	48
Apr. 1	47 49	125 00	7	28	54 51	168 34	31
2	47 36	124 50	5	29	54 48	168 24	230
3	47 34	125 08	19	30	54 45	168 47	135
5	48 20	126 56	20	31	.....	.....	45
7	48 36	127 02	3	Aug. 1	54 45	168 00	153
9	50 17	128 30	4	2	54 50	168 00	87
10	50 12	128 17	1	3	54 51	169 15	45
11	49 51	128 16	90	4	54 30	168 30	8
12	50 06	.....	16	5	54 00	168 10	6
13	49 54	128 15	10	7	53 40	.....	83
22	48 33	125 56	13	8	53 30	.....	61
24	48 15	125 40	34	9	54 00	.....	88
28	47 45	126 00	5	10	53 50	170 30	127
May 2	48 15	125 15	18	11	53 15	170 00	18
3	48 14	125 25	32	15	53 51	169 45	44
4	48 27	125 56	63	19	54 40	169 00	146
6	49 49	127 27	20	21	.....	.....	58
7	49 30	128 20	17	23	54 45	167 26	37
8	49 54	128 22	53	24	.....	.....	31
10	49 10	127 20	24				

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1887.

1887.	N.	W.		1887.	N.	W.	
Jan. 24	41 18	125 45	2	Apr. 6	49 14	128 16	18
Feb. 2	37 44	124 10	23	7	.....	.....	33
7	38 00	124 00	7	8	49 33	127 54	7
17	.....	.....	5	10	49 36	127 29	5
Mar. 1	38 00	124 00	4	12	50 07	128 45	15
5	40 53	.....	4	13	.....	.....	28
9	47 38	125 35	7	15	49 30	127 30	14
15	47 38	125 35	2	May 9	50 17	128 40	33
17	48 00	126 00	5	11	50 01	129 00	10
19	48 18	126 36	39	13	.....	.....	5
20	48 00	126 20	27	14	52 00	134 12	71
21	48 00	126 34	10	15	.....	.....	3
22	48 00	126 30	59	18	55 45	136 34	10
23	48 00	126 30	6	19	55 33	136 00	96
24	48 06	127 40	6	21	56 13	136 00	1
27	47 42	126 00	2	22	56 52	139 11	20
28	48 00	126 00	29	23	57 26	139 44	24
30	48 00	127 00	19	24	56 48	138 57	24

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken—Continued.

AMERICAN SCHOONER MARY ELLEN, D. McLEAN, MASTER—1887—Continued.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1887.	N.	W.		1887.	N.	W.	
May 30	57 43	138 00	13	July 9	54 44	168 26	4
31	.....	.....	7	11	.....	.....	5
June 1	56 56	139 00	32	12	55 32	167 36	33
2	.....	.....	34	13	55 47	168 10	134
5	56 53	139 32	9	17	55 24	168 04	54
9	57 32	143 02	23	18	55 30	167 45	103
11	57 44	148 28	5	21	55 51	168 19	29
12	55 46	150 56	1	22	55 25	167 49	144
14	55 01	156 17	36	24	55 20	167 20	74
15	54 38	156 20	7	25	55 41	167 51	49
16	54 30	.....	1	26	55 15	167 40	49
19	53 43	162 02	1	27	.....	.....	23
20	52 57	165 18	10	31	54 28	169 00	70
22	52 43	167 05	27	Aug. 1	54 41	169 00	95
25	53 57	(a)	.....	3	54 20	169 00	11
26	53 30	172 30	28	5	54 15	171 00	230
27	53 17	172 16	20	6	54 15	170 39	45
28	52 50	171 10	10	7	54 22	170 30	12
29	54 40	170 20	2	8	54 00	171 00	58
30	55 40	170 10	1	9	54 18	171 30	23
July 1	54 00	170 48	8	15	54 19	170 01	20
2	54 02	.....	39	17	53 53	170 27	19
4	54 19	167 21	29	18	53 47	169 57	20
5	54 20	167 18	37	19	53 37	170 00	37
8	.....	.....	3				

a Bering Sea.

CANADIAN SCHOONER FAVORITE (BERING SEA), D. McLEAN, MASTER—1886.

1886.	N.	W.		1886.	N.	W.	
July 8	55 54	167 25	11	July 29	55 15	167 42	119
9	55 53	167 03	16	30	55 24	168 03	106
10	53 37	169 09	78	31	55 17	168 17	128
11	55 13	167 21	113	Aug. 1	54 50	168 49	22
12	55 19	167 23	106	2	54 40	168 50	142
13	55 25	166 56	173	3	54 39	169 23	(a)
14	55 20	167 05	149	4	54 35	168 40	.....
15	55 30	167 20	24	5	54 50	170 07	.....
16	55 30	168 00	47	6	55 06	170 40	.....
17	55 30	168 00	139	7	54 51	170 49	.....
19	55 39	168 25	118	8	54 46	171 01	.....
20	55 32	169 11	124	9	55 03	170 40	.....
21	55 35	166 50	45	13	54 45	168 17	.....
22	55 32	167 10	3	14	55 24	168 35	.....
23	55 26	167 15	92	15	55 30	169 10	.....
24	55 21	167 30	31	16	56 15	166 45	.....
27	54 55	167 30	16	17	55 40	165 20	.....
28	55 61	167 49	154	18	55 12	165 40	.....

a From August 2 to the end of the cruise no record of seals written in the log.

CANADIAN SCHOONER FAVORITE (BERING SEA), D. McLEAN, MASTER—1887.

1887.	N.	W.		1887.	N.	W.	
July 10	55 17	166 41	2	Aug. 2	55 16	168 29	29
11	55 42	168 37	23	4	55 05	168 45	33
12	55 58	168 30	13	5	55 45	168 50	105
13	55 40	168 18	a 54	6	55 45	168 47	108
14	55 23	168 30	.....	8	55 38	169 18	109
15	55 29	168 24	18	9	55 47	169 23	36
16	55 12	168 30	41	12	55 48	169 20	103
17	55 12	168 30	46	15	55 30	169 00	10
18	55 15	168 25	68	17	55 20	167 56	26
19	55 28	169 00	.....	18	55 03	168 20	147
20	55 38	169 12	1	19	54 37	168 17	3
21	55 19	169 00	50	20	54 30	168 28	14
22	55 13	168 50	5	22	54 30	168 50	57
23	55 14	168 45	13	23	54 26	169 68	16
24	55 27	168 40	171	24	54 20	169 12	122
25	55 17	168 50	9	25	54 06	170 04	149
26	55 05	168 40	4	26	53 55	170 00	19
30	55 20	167 40	4				
31	55 06	167 45	56	Total	.....	.....	1,819
Aug. 1	55 30	168 30	56				

a This catch made by white hunters.

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken—Continued.

AMERICAN SCHOONER HENRY DENNIS (NORTHWEST COAST), R. H. MINER, MASTER—1891.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1891.	N.	W.		1891.	N.	W.	
Apr. 29	53 40	133 30	30	May 29	57 31	136 50	24
May 2	54 41	135 49	3	30	57 38	136 46	68
6	54 42	136 27	21	31	57 38	137 20	16
7	51 15	137 48	8	June 4	58 38	141 10	17
8	57 40	136 51	90	6	58 [illegible]	140 27	28
9	57 40	136 51	64	7	58 12	140 27	2
10	57 40	136 51	64	8	58 31	141 34	30
11	57 40	136 51	55	9	59 03	140 37	13
12	57 40	136 51	30	10	58 57	140 45	75
15	57 49	138 50	35	11	58 34	140 56	1
18	59 08	141 08	49	14	58 39	144 25	13
19	58 58	141 19	1	16*a*	57 45	150 47	1
22	58 48	140 18	31	17*b*	57 45	150 47	9
25	57 20	136 49	1	18	57 05	151 00	3
26	57 35	136 52	10	July 27	51 32	164 44	1
27	57 35	136 52	1				

a Portlock Bank, 50 fathoms, 600 pounds codfish. *b* Codfish plenty.

AMERICAN SCHOONER HENRY DENNIS (NORTHWEST COAST AND COPPER ISLAND REGION), R. H. MINER, MASTER—1892.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1892.	N.	W.		1892.	N.	W.	
Jan. 20	48 13	125 21	.....	May 17	58 41	147 50	13
21	47 23	125 37	1	18	58 23	140 40	11
23	46 45	124 30	1	21	57 06	149 38	15
Feb. 5	46 21	126 38	24	22	57 18	150 05	18
6	46 20	127 00	9	25	57 26	150 18	1
14	46 51	124 46	9	29	58 15	158 20	84
15	46 48	124 36	30	30	58 02	150 15	8
16	46 58	124 42	8	31	.....	.....	121
17	46 27	125 58	6	June 1	58 00	150 00	20
18	46 17	124 57	4	7	55 40	152 55	1
19	46 19	124 54	7	8	55 31	154 40	5
Mar. 19	48 19	125 54	4	9	55 20	155 10	1
20	48 36	126 59	1			E.	
21	49 29	127 47	2	July 2*b*	52 24	169 49	.....
Apr. 3	57 12	137 38	5	4*c*	.....	.....	7
5	56 36	138 06	3	6	54 00	168 28	5
6	57 11	137 37	8	10	54 09	168 53	5
7	57 17	137 52	46	14	53 46	166 52	6
8	57 11	138 07	20	15	54 01	168 28	34
10	56 47	138 40	58	17	54 14	179 17	1
12	56 55	138 07	65	22	53 59	170 00	2
15	55 58	139 51	1	23	54 13	169 39	2
16	56 55	138 30	27	25	54 27	169 38	38
18	57 41	139 27	61	26	54 39	169 20	3
22	57 52	140 13	40	27	54 01	169 17	27
23	57 52	140 13	87	28	53 52	169 21	87
24	58 56	141 48	5	29	53 46	169 30	7
25	58 56	141 48	116	Aug. 1	56 37	168 30	1
26	.....	.....	97	3	56 40	168 38	13
27	.....	.....	173	4	56 27	168 13	40
28	.....	.....	101	5	56 20	168 07	108
29*a*	.....	.....	31	6	56 37	168 10	28
30	.....	.....	60	7	56 43	167 50	1
May 1	59 14	142 18	1	9	54 21	170 00	2
2	58 45	143 16	7	10	53 35	169 49	15
4	59 28	145 09	39	11	53 53	168 30	2
5	59 20	145 03	38	12	53 35	168 50	24
6	59 17	144 44	4	14	53 10	167 14	1
8	59 09	147 05	16	18	53 18	169 45	13
11	59 15	146 27	8	19	53 41	169 51	20
12	59 06	145 45	179	22	52 36	170 53	3
13	59 15	146 27	15	23	52 18	169 10	68
14	59 16	145 30	3	26	52 38	169 45	20
15	59 22	148 57	1	27	52 24	170 02	31
16	59 13	145 12	25	28	52 24	170 06	1

a Mount St. Elias north 50 miles. *b* A few seals seen. *c* Copper Island in sight, bearing west.

us data on pelagic sealing in the North Pacific Ocean and Bering Sea from 78 to 1893, showing positions where fur seals were taken—Continued.

CANADIAN SCHOONER UMBRINA (JAPAN COAST)—1893.

ta.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
3.	N.	E.		1893.	N.	E.	
.....	38 00	143 00	.....	May 23	40 15	143 33	43
.....	38 30	143 00	91	24	41 00	143 37	52
.....	39 30	143 15	.....	25	40 56	143 23	95
.....	39 40	144 22	3	26	40 50	143 10	19
.....	38 30	145 55	31	29	39 40	144 20	.....
.....	37 30	145 40	79	30	40 30	144 00	6
.....	37 15	145 17	71	June 2	39 50	145 05	26
.....	37 10	145 10	51	3	40 11	145 05	47
.....	37 18	145 30	45	4	40 50	144 35	13
.....	37 07	145 20	191	6	42 00	145 05	7
.....	37 20	145 09	10	7	41 27	145 35	32
.....	37 04	145 00	.....	8	41 55	143 56	79
.....	37 36	145 15	4	9	41 57	143 50	51
.....	37 37	145 40	19	10	42 04	143 50	9
.....	39 30	144 40	61	11	42 16	144 35	29
.....	40 20	145 35	9	12	42 55	145 20	4
.....	39 58	144 45	75	13	43 00	147 00	.....
.....	40 09	145 49	.....	14	43 06	147 56	.....
.....	40 00	144 51	84	15	43 06	147 41	29
.....	39 50	144 45	18	16	43 09	147 20	85
.....	39 45	144 15	65	18	43 15	147 00	25
.....	39 59	145 55	27	19	43 35	147 05	35
.....	39 25	145 15	61	20	43 25	147 18	4
.....	40 20	144 40	105	21	43 12	147 33	10
.....	40 22	144 35	2	22	43 12	147 33	8
.....	40 10	143 40	2	23	.....	.....	7

ADIAN SCHOONER TRIUMPH (JAPAN COAST), COX, MASTER—1892.

	N.	E.			N.	E.	
.....	39 17	145 06	37	Apr. 27	40 04	145 10	35
.....	39 36	145 02	95	28	39 43	145 39	155
.....	40 00	145 08	64	29	39 26	145 47	67
.....	40 28	145 28	9	30	39 23	146 26	25
.....	39 48	145 10	168	May 3	40 02	145 41	15
.....	39 49	145 05	111	6	39 36	145 06	7
.....	39 50	145 10	13	7	40 22	145 32	15
.....	40 13	145 26	43	8	40 15	146 18	33
.....	40 10	145 05	104	9	40 18	145 38	39
.....	45 09	144 09	38	10	40 36	145 12	17
.....	40 30	144 25	9	11	40 05	145 20	48
.....	39 23	145 07	18	12	40 11	145 13	28
.....	40 53	145 28	13	14	40 11	145 32	61
.....	40 07	145 50	27	15	40 39	145 21	10
.....	39 37	145 08	103	16	40 46	145 21	34

IAN SCHOONER TRIUMPH (NORTHWEST COAST), COX, MASTER—1893.[a]

	N.	W.			N.	W.	
.....	57 48	138 38	.....	May 7	57 41	141 52	103
.....	57 57	138 57	.....		57 38	140 59	.....
.....	58 02	139 09	.....		57 45	141 22	.....
.....	57 25	139 19	.....		57 57	142 37	.....
.....	57 21	138 38	.....	16	58 06	141 43	.....
.....	57 51	139 31	.....	17	58 08	141 50	b 239
.....	58 31	140 06	.....				

Cox has found seals plentiful in September in latitude 49° 40′ and longitude 147°. A ground is Mount Fairweather, 115 miles north one-half west.
lays.

Miscellaneous data on pelagic sealing in the North Pacific Ocean and Bering Sea from 1878 to 1893, showing positions where fur seals were taken—Continued.

CANADIAN FUR-SEAL CATCH IN 1893.

[From official sources.]

[Catch by each vessel of the British Columbia fleet and the place where the skins were taken.]

Vessel.	British Columbia coast.	Japan coast.	Russian coast.	Total.	Vessel.	British Columbia coast.	Japan coast.	Russian coast.	Total.
Triumph	1,712	.....	623	2,336	Wanderer	206	.....	.....	206
Sapphire	1,262	.....	341	1,603	Viva	.....	1,441	26	1,471
E. B. Marvin	1,014	.....	517	1,531	May Belle	.....	1,352	.....	1,352
Mascot	857	.....	327	1,184	Umbrina	.....	1,527	625	2,152
Dora Steward	1,426	.....	434	1,860	Penelope	.....	2,291	.....	2,291
Labrador	263	.....	.....	263	Vera	.....	1,910	95	2,005
Minnie	489	.....	20	509	Pioneer	1,050	.....	.....	1,050
Annie E. Paint	740	.....	401	1,141	Otto	630	.....	397	1,027
Mischief	344	.....	.....	344	Mary Taylor	345	.....	340	1,085
Diana	707	.....	294	1,001	Brenda	845	.....	403	1,248
Venture	82	.....	.....	82	Libbie	.....	1,242	239	1,481
Mermaid	.....	940	315	1,255	City of San Diego	.....	942	101	1,043
Fawn	806	.....	77	883	Geneva	.....	1,612	454	2,066
Walter A. Earle	1,622	.....	.....	1,622	Cesce	.....	1,473	199	1,672
Beatrice, of Victoria	655	.....	.....	655	Carletta G. Cox	.....	2,396	376	2,772
Ocean Belle	1,316	.....	547	1,863	Oscar and Hattie	.....	1,178	1,020	2,198
Mountain Chief	128	.....	.....	128	Teresa	.....	677	147	824
Aristia	.....	920	464	1,384	Sadie Turpal	.....	937	475	1,412
Cape Beale	86	.....	.....	86	Maud S	.....	965	.....	965
Kate	293	.....	.....	293	Mary Ellen	.....	1,573	406	1,979
Favorite	949	.....	.....	949	W. L. Rich	1,321	.....	517	1,838
Borealis	1,307	.....	.....	1,307	Annie C. Moore	.....	822	333	1,155
Ainoko	1,344	.....	46	2,390	W. P. Hall	.....	725	263	988
W. P. Sayward	596	.....	.....	596	Beatrice, of Vancouver	950	.....	.....	950
Katherine	352	.....	363	715	C. D. Rand	1,060	.....	.....	1,060
San José	242	.....	.....	242	Indian canoe catch	2,035	66	.....	2,101
Enterprise	.....	1,027	274	1,301					
Agnes McDonald	.....	2,333	433	2,766	Total	28,613	29,173	11,955	69,741
Victoria	429	.....	.....	429					
Rosie Olsen	358	.....	.....	358					

Positions of fur seals observed by Lieut. Commander Z. L. Tanner, U. S. N., from steamer City of Peking in 1878.

Date.	Latitude.	Longitude.
1878.	N.	W.
July 1	43 01	161 28
		E.
June 25	42 55	163 14
June 27	43 44	173 49
June 28	43 43	177 49

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894.

[From official sources.]

AMERICAN SCHOONER ELLA JOHNSON (BERING SEA), R. H. MINER, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 9	54 24	166 45	1	.....	1
10	54 46	167 20	4	95	99
11	54 47	168 18	.....	9	9
12	55 05	168 55	20	95	115
15	54 37	168 26	15	48	63
18	54 15	168 43	18	47	65
19	54 17	168 25	21	81	102
23	54 39	167 07	14	71	85
24	54 39	167 20	10	79	89
27	55 01	167 58	2	10	12
28	57 37	169 06	5	37	42
29	54 15	168 57	95	68	63
30	54 07	168 34	15	34	49
31	54 19	168 51	16	32	48
Sept. 1	54 09	168 33	40	62	102
2	54 29	168 39	10	45	55
5	54 29	167 42	20	11	31
7	54 52	166 54	23	49	63
8	54 49	168 54	25	80	85
9	54 07	168 56	15	30	45
13	54 52	169 03	2	4	3
15	54 41	167 57	6	17	23
Total	.....	.....	322	892	1,214

AMERICAN SCHOONER DEEAHKS (BERING SEA), JAMES CLAPLANHOY, MASTER.

[Catch, 1,023; 155 males, 868 females.]

1894.	N.	W.			
Aug. 6	54 23	167 00	.....	.....	11
7	54 41	168 00	.....	.....	7
8	54 58	170 52	.....	.....	11
9	55 36	172 17	.....	.....	2
10	56 02	172 27	.....	.....	55
11	56 10	172 37	.....	.....	20
14	56 21	173 09	.....	.....	1
15	55 43	172 39	.....	.....	9
16	55 35	172 36	.....	.....	1
18	55 16	171 05	.....	.....	23
19	55 11	170 42	.....	.....	13
22	54 10	167 00	.....	.....	51
23	54 25	167 30	.....	.....	39
24	54 35	167 38	.....	.....	40
26	54 59	167 00	.....	.....	5
27	55 03	166 34	.....	.....	12
28	54 37	167 21	.....	.....	153
29	54 39	167 14	.....	.....	91
30	54 30	167 14	.....	.....	58
31	54 54	166 56	.....	.....	14
Sept. 1	54 25	166 47	.....	.....	170
2	54 34	167 18	.....	.....	30
7	54 35	166 57	2	2	4
8	54 43	166 49	9	21	30
9	54 34	166 51	17	34	51
10	54 34	166 51	1	4	5
12	54 43	167 33	.....	1	1
13	54 42	167 16	5	7	12
14	54 35	166 45	4	13	17
15	54 35	166 45	13	27	40

NOTE.—Data for sex not collected by me from August 6 to September 2, but reported from customhouse at Port Townsend as 155 males, 868 females.—C. H. T.

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

AMERICAN SCHOONER STELLA ERLAND (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 5	54 44	167 23	7	37	44
6	54 56	167 41	3	13	16
8	56 04	165 59	.....	6	6
12	58 24	168 01	.....	1	1
16	58 11	172 27	.....	1	1
18	57 48	172 28	2	33	35
22	56 30	172 35	3	21	24
25	56 13	171 30	.....	1	1
27	54 40	168 59	1	5	6
28	54 24	168 57	5	9	14
29	53 47	169 35	14	32	46
30	53 35	169 41	31	51	82
31	53 34	169 21	23	35	58
Sept. 1	53 38	169 25	39	59	98
2	53 47	169 40	21	29	50
7	54 20	167 47	17	8	25
8	54 46	166 55	32	55	87
10	54 55	166 59	3	12	15
12	55 09	166 55	1	.....	1
14	54 48	166 36	7	22	29
15	54 47	166 15	10	112	122
Total	.....	.....	219	542	761

AMERICAN SCHOONER IDA ETTA (BERING SEA), B. B. WHITNEY, MASTER.

[Crew, 17; boats, 9; hunters, 9.]

1894.	N.	W.			
Aug. 1	54 40	169 00	5	2	7
2	55 06	170 46	6	8	14
3	54 46	171 25	3	4	7
4	54 50	171 34	12	51	63
5	54 49	171 37	1	12	13
6	55 33	173 48	2	6	8
7	55 50	173 35	6	12	18
11	58 00	173 40	.....	1	1
18	54 09	168 39	25	53	78
19	54 15	168 10	6	17	23
22	54 18	167 55	3	.....	3
23	54 05	168 05	3	.....	3
24	54 07	168 25	.....	36	36
26	54 15	167 27	2	.....	2
27	54 16	168 50	15	37	52
28	54 17	168 14	6	13	19
29	54 43	167 50	5	20	25
30	54 45	167 49	14	59	73
31	54 44	169 00	2	18	20
Sept. 1	54 25	169 35	35	46	81
2	54 26	168 35	9	18	27
7	54 24	167 25	.....	1	1
8	54 17	168 09	10	3	13
9	54 18	168 15	8	4	12
16	54 58	167 23	.....	1	1
17	55 11	167 39	14	14	28
19	54 32	166 03	5	38	43
20	54 23	165 55	4	21	25
21	54 24	166 05	6	33	39
Total	.....	.....	204	532	736

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

AMERICAN SCHOONER COLUMBIA (BERING SEA), T. J. POWERS, MASTER.

[Crew, 24; canoes, 10; hunters, 10; boats, 1.]

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 3	55 11	171 10	9	4	13
4	55 17	171 31	26	27	53
5	55 32	173 30	6	9	15
6	56 09	173 30	3	3	6
7	56 30	173 10	7	5	12
8	56 33	172 34	5	10	15
9	56 51	172 28	1	.....	1
10	56 54	172 43	11	16	27
11	57 09	173 19	20	27	47
17	57 01	174 20	3	2	5
19	57 06	174 14	4	8	12
23	57 49	173 50	3	9	12
24	57 49	175 01	2	2	4
28	57 54	175 09	2	1	3
29	57 00	173 52	19	23	42
31	55 46	173 07	1	.....	1
Sept. 1	55 25	172 55	3	6	9
2	55 23	172 24	18	25	43
3	54 58	172 26	1	3	4
5	54 28	167 57	19	14	33
9	54 19	167 53	3	5	8
10	30 miles north of Bogoslof Island.		9	15	24
13	54 25	167 30	5	9	14
Total	.....	.....	180	223	403

AMERICAN SCHOONER THERESE (BERING SEA), CHARLES HARITWEN, MASTER.

[Crew, 22; boats, 6; hunters, 6.]

1894.	N.	W.			
Aug. 2	56 11	175 17	.....	1	1
3	56 57	174 15	.....	1	1
4	57 54	174 06	1	3	4
6	58 09	173 38	1	12	13
7	58 22	173 04	1	25	26
8	58 21	173 08	.....	2	2
11	58 02	171 50	2	.....	2
23	55 05	166 45	1	11	12
24	54 52	166 54	.....	37	37
27	54 56	166 24	.....	5	5
28	54 43	166 52	20	31	51
29	54 22	166 52	13	23	36
30	54 22	166 27	10	10	20
Sept. 1	54 49	165 59	20	46	66
2	54 47	166 18	6	9	15
3	54 46	166 19	1	.....	1
8	54 50	165 21	1	5	6
9	54 39	166 26	4	15	19
10	54 36	166 26	.....	1	1
Total	.....	.....	81	237	318

AMERICAN SCHOONER ALLIE I. ALGAR (BERING SEA), WESTER, MASTER.

	N.	W.			
Aug. 15	53 49	168 50	1	.....	1
18	54 46	167 43	20	49	69
19	54 46	167 30	10	15	25
22	54 25	167 18	10	13	23
23	54 40	167 50	5	4	9
24	55 12	168 08	3	5	8
27	54 40	168 40	11	16	27
28	54 35	168 20	12	20	32
29	54 50	168 06	23	29	52
30	54 47	167 57	16	20	36
31	54 20	167 19	.....	3	3
Sept. 1	55 12	167 36	9	14	23
2	55 13	168 08	2	2	4
5	56 05	167 55	2	4	6
7	55 39	168 14	4	5	9
Total	.....	.....	128	199	327

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

AMERICAN SCHOONER ROSE SPARKS (BERING SEA), J. W. TROTT, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 11	56 42	174 23	1	1	[illegible]
15	55 43	172 27	.....	3	[illegible]
18	54 42	167 48	5	22	[illegible]
19	54 43	167 20	1	2	[illegible]
23	54 31	167 15	5	14	[illegible]
24	55 26	167 57	1	.....	1
25	55 45	167 47	.....	2	[illegible]
28	55 06	167 48	3	18	[illegible]
29	54 54	168 10	5	25	[illegible]
30	54 48	168 20	5	17	[illegible]
31	54 54	167 30	2	2	[illegible]
Sept. 1	54 42	167 34	6	20	[illegible]
2	54 42	167 25	1	1	[illegible]
5	54 31	165 45	1	2	[illegible]
6	54 28	165 35	1	2	[illegible]
Total	.....	.....	37	160	[illegible]

AMERICAN SCHOONER JANE GREY (BERING SEA).

1894.	N.	W.			
Aug. 13	55 29	172 28	1	4	[illegible]
15	56 01	175 00	.....	1	
17	55 36	172 34	1	3	
18	55 52	173 06	2	3	[illegible]
22	54 59	170 32	2	7	
26	54 28	168 18	1	7	
27	54 28	168 45	13	17	[illegible]
28	54 36	168 24	7	9	[illegible]
29	54 32	168 16	5	8	[illegible]
30	54 20	167 45	4	7	
31	54 56	167 32	1	.....	
Sept. 1	55 30	167 12	2	3	
2	55 02	165 55	7	13	
Total	.....	.....	46	92	[illegible]

AMERICAN SCHOONER LOUIS OLSEN (BERING SEA), GUILLAMS, MASTER.

1894.	N.	W.		
Aug. 4	57 50	173 56	4	8
6	58 30	173 56	4	15
7	58 30	173 56	4	30
10	58 27	172 46	1	3
11	57 42	172 52	3	19
16	56 05	172 17	2	.....
Total	.....	.....	18	68

CANADIAN SCHOONER ROSIE OLSEN (BERING SEA).

1894.	N.	W.		
Aug. 13	57 07	174 42	.....	1
16	57 05	174 18	.....	1
17	56 47	174 34	3	1
18	56 49	174 38	3	13
23	56 56	174 42	7	8
27	57 47	173 00	2	1
28	56 00	173 00	49	63
29	57 58	173 17	7	4
30	58 01	172 44	2	6
Sept. 1	58 01	172 50	20	29
2	58 06	173 10	20	49
5	57 47	173 20	3	13
6	58 00	173 45	13	13
7	58 13	173 36	36	49

sitions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER ROSIE OLSEN (BERING SEA)—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Sept. 8	58 16	176 30	20	10	30
9	58 11	173 11	24	29	53
10	58 15	173 00	17	12	29
12	57 50	173 00	11	8	19
14	57 56	173 16	58	35	93
16	58 05	173 08	34	28	62
18	57 56	173 22	4	1	5
19	57 47	173 25	76	59	135
20	57 47	173 21	1	4	5
Total			425	431	856

CANADIAN SCHOONER UMBRINA (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 7	57 40	176 45	1		1
9	58 20	172 55		2	2
10	57 53	172 32	2	6	8
18	58 07	172 50	7	15	22
22	58 12	172 00	20	7	27
Total			30	30	60

CANADIAN SCHOONER ARIETIS (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 4	56 28	172 14	7	13	20
5	56 22	172 14		2	2
6	56 02	171 56	2	5	7
7	56 26	172 14	10	16	26
8	56 02	171 56	5	1	6
10	55 38	172 50		3	3
11	55 08	171 07	2	1	3
12	54 08	170	4	1	5
13	54 50	168 38	1		1
15	54 41	168 50	8	10	18
Total			39	52	91

CANADIAN SCHOONER WALTER A. EARLE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 1	56 00	172 30	1	9	10
3	56 17	172 00		3	3
4	56 18	172 00	15	30	45
6	56 00	172 41	10	25	35
7	57 58	172 26	20	12	32
10	57 10	172 20	10	20	30
18	56 00	172 22	15	32	47
22	56 12	172 15	9	12	21
23	56 27	172 32	26	80	106
28	56 24	172 32		26	26
30	56 52	172 32	2	20	22
Sept. 1	56 22	172 42	5	30	35
2	56 42	174 10	8	60	68
5	56 42	172 52	6	16	22
6	56 42	172 52	7	13	20
7	56 19	172 56		22	20
8	56 14	172 00	2	30	32
9	56 21	172 56		14	14
10	56 56	172 54	16	42	30
Total			156	327	672

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER FAWN (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 3	56 05	172 02	2	.....	2
4	56 35	172 05	10	4	14
5	57 18	172 40	2	3	5
6	57 35	173 30	3	12	15
7	58 10	173 30	15	16	31
9	58 05	173 23	4	9	13
10	57 50	173 03	14	24	38
11	57 42	172 50	12	3	15
16	55 59	172 17	.....	3	3
18	55 47	172 11	4	27	31
22	55 54	172 12	10	18	28
23	56 21	172 41	4	.....	4
27	55 37	171 17	5	24	29
28	55 36	171 28	12	23	35
29	55 36	171 38	41	18	59
30	55 32	171 42	28	6	34
31	55 38	171 11	14	9	23
Sept. 1	55 00	170 16	18	23	41
2	54 30	170 00	.....	3	3
5	54 52	168 47	31	13	44
6	54 56	168 13	4	.....	4
7	55 19	167 55	24	35	59
9	55 25	168 26	22	27	49
10	55 21	168 36	8	6	14
12	55 13	169 09	.....	6	6
13	55 08	169 21	7	16	23
14	55 00	169 08	7	3	10
15	55 10	169 06	9	5	14
Total	.....	.....	310	336	646

CANADIAN SCHOONER MARY ELLEN (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 6	57 10	173 20	1	4	5
7	57 16	173 26	1	5	6
8	57 30	173 35	1	4	5
10	56 26	172 59	8	15	23
11	56 26	172 59	4	14	18
22	56 42	173 04	2	8	10
23	56 42	173 04	9	13	22
25	57 04	173 10	.....	2	2
27	57 10	173 12	3	12	15
28	57 10	173 12	11	33	44
29	57 10	173 12	1	7	8
30	57 10	173 12	2	11	13
Sept. 1	57 22	173 16	6	22	28
2	57 22	173 16	8	37	45
5	57 22	173 16	4	18	22
6	57 22	173 16	11	41	52
7	57 46	173 22	10	37	47
8	57 46	173 22	9	44	53
9	57 52	173 27	12	17	29
10	57 52	173 27	2	8	10
Total	.....	.....	105	352	457

CANADIAN SCHOONER VERA (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 7	56 26	173 17	.....	4	4
8	56 25	173 17	.....	1	1
9	55 57	172 30	1	.....	1
10	55 57	172 30	3	4	7
11	55 50	172 58	6	5	11
13	55 04	172 35	9	1	10
17	54 30	168 30	.....	1	1
18	54 30	167 56	33	80	113
19	54 24	167 46	.....	2	2
22	54 17	167 37	3	1	4
23	54 23	168 03	13	10	23
24	54 30	168 07	12	6	18
Total	.....	.....	80	115	195

ositions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER TRIUMPH (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
ug. 1	55 33	172 32	28	87	115
2	55 47	171 50	35	78	113
4	56 03	172 50	90	90	180
5	56 53	172 50	4	6	10
6	56 58	173 25	30	15	45
7	56 58	173 30	50	62	112
8	57 06	173 30	5	13	18
9	57 15	173 40	.....	5	5
10	56 29	173 05	30	70	100
11	56 25	173 06	20	36	56
15	55 46	171 59	4	11	15
19	55 30	171 30	15	25	37
22	54 38	168 50	80	63	143
23	54 32	168 25	50	58	108
24	54 30	168 29	38	51	89
25	54 38	168 20	10	12	22
26	54 30	168 12	20	30	50
27	54 40	168 00	70	93	163
28	54 53	167 50	80	98	178
29	54 46	168 40	50	117	167
30	54 54	167 58	42	83	125
31	55 00	168 18	26	35	61
Sept. 1	54 57	168 12	80	244	324
2	55 01	168 29	40	83	123
4	55 04	168 30	7	19	26
5	55 09	168 20	53	90	143
6	55 20	168 55	97	207	304
7	55 18	169 09	17	38	55
8	55 05	169 09	40	87	127
9	55 20	169 08	53	157	210
10	55 20	169 08	2	14	16
Total	.....	.....	1,163	2,077	3,240

CANADIAN SCHOONER SAPPHIRE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
ug. 1	54 58	170 59	53	42	95
2	54 55	171 20	31	38	69
3	55 01	171 16	9	8	17
4	55 50	172 01	41	42	83
5	56 00	171 51	33	13	46
6	57 03	173 59	12	7	19
7	57 03	173 04	18	19	37
8	57 40	173 30	2	4	6
10	56 26	172 42	25	56	81
11	56 16	172 30	25	21	46
13	55 32	171 49	5	13	18
15	55 17	168 48	30	45	75
18	54 50	169 20	21	50	71
19	55 00	168 39	8	20	28
22	54 49	167 43	10	2	12
23	54 46	167 42	66	59	125
24	54 57	167 45	50	33	83
25	55 00	168 06	6	.....	6
26	54 57	168 47	10	6	16
27	54 58	168 45	70	83	153
28	54 39	169 02	41	20	61
29	54 50	169 04	60	26	86
30	54 53	168 09	112	45	157
31	55 09	168 13	8	3	11
ept. 1	55 13	168 05	110	64	174
2	55 11	168 37	42	25	67
4	55 00	168 48	8	4	12
5	54 57	168 18	98	30	128
6	55 13	168 21	12	4	16
7	55 05	168 03	28	9	37
8	54 50	168 02	8	.....	8
9	54 55	168 01	62	49	111
10	55 09	168 09	1	.....	1
11	54 40	168 40	2	.....	2
13	55 03	168 58	31	11	42
15	54 52	168 23	20	4	24
16	55 09	167 04	4	1	5
17	55 23	167 02	24	16	40
18	55 05	166 11	14	.....	14
19	54 10	164 38	21	7	28
Total	.....	.....	1,226	879	2,105

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER AURORA (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 6	56 23	173 40	4	9	13
7	56 30	174 00	10	12	22
8	56 25	173 35	1	22	23
9	56 45	173 35	6	1	7
10	56 12	172 43	20	17	37
11	56 17	173 10	3	10	13
13	56 40	173 22	.....	9	9
15	53 55	170 56	12	22	34
16	54 04	168 00	16	22	38
18	55 28	166 00	3	5	8
19	55 18	166 01	4	8	12
23	53 18	159 00	.....	1	1
Total	.....	.....	79	138	217

CANADIAN SCHOONER BEATRICE, OF SHANGHAI (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 1	54 49	166 35	3	10	13
3	55 14	170 34	1	6	7
4	54 59	170 16	55	136	191
5	54 53	170 23	10	79	89
7	54 50	170 49	14	72	86
8	54 45	170 44	19	23	42
9	54 25	170 53	11	6	17
10	54 19	171 27	18	6	24
11	54 32	171 49	15	14	29
12	54 54	171 30	2	8	10
15	54 46	170 18	4	6	10
17	55 03	171 06	.....	6	6
18	54 52	171 00	6	48	54
19	54 58	170 53	3	4	7
23	55 12	169 27	1	14	15
25	54 57	171 01	7	13	20
27	54 34	171 34	7	43	50
28	54 32	171 36	2	21	23
29	55 22	171 32	5	16	21
30	55 08	170 40	10	40	50
31	55 01	170 31	3	5	8
Sept. 1	54 41	170 24	30	82	112
2	54 49	170 02	3	3	6
5	54 24	168 41	5	4	9
6	54 57	170 14	6	13	19
8	54 56	167 35	5	11	16
9	54 55	167 28	20	75	95
10	55 08	167 37	3	.....	3
13	54 36	167 14	15	13	28
14	54 37	166 55	12	3	15
15	54 39	167 03	19	20	39
16	54 53	166 44	3	.....	3
17	55 09	167 04	20	16	36
18	54 51	166 42	4	2	6
19	54 22	166 36	1	.....	1
Total	.....	.....	342	818	1,160

CANADIAN SCHOONER MASCOT (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 1	55 06	168 20	18	5	23
2	54 40	167 20	2	4	6
3	54 20	167 10	1	2	3
9	55 34	171 33	2	3	5
10	55 40	171 15	33	22	55
11	56 10	172 00	11	7	18
22	56 05	171 15	12	10	22
28	57 56	173 29	31	26	57
29	57 56	173 29	4	7	11
30	57 50	173 11	5	4	9
Sept. 1	57 47	173 15	16	25	41
2	57 49	173 13	15	35	50
5	58 03	173 46	18	12	30

where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER MASCOT (BERING SEA)—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
.....	58 02	174 00	11	11	22
.....	58 04	173 50	39	19	58
.....	58 14	173 45	21	19	40
.....	58 02	173 35	16	4	20
.....	58 00	173 35	23	20	43
	(a)	(a)	21	11	32
al.....	.....	.....	299	246	1,103

a Canoe lost and picked up by schooner *Wanderer* with 32 skins.

CANADIAN SCHOONER FAVORITE (BERING SEA).

1894.	N.	W.			
.....	54 40	166 20	98	64	162
.....	55 05	168 05	.....	2	2
.....	55 13	168 20	49	30	79
.....	55 03	168 40	150	67	217
.....	55 40	173 00	70	52	122
.....	55 40	173 30	60	14	74
.....	56 46	173 15	10	13	23
.....	56 26	173 20	50	48	98
.....	56 26	169 46	25	25	50
.....	54 41	169 18	25	22	47
.....	54 21	169 10	60	28	88
.....	54 25	168 00	39	30	69
.....	54 39	168 10	40	24	64
.....	54 39	168 10	67	60	127
.....	54 38	169 29	9	9	18
al.....	.....	.....	752	488	1,240

CANADIAN SCHOONER ANNIE C. MOORE (BERING SEA).

1894.	N.	W.			
.....	57 50	173 00	24	24	48
.....	57 50	172 48	11	13	24
.....	57 50	173 00	12	14	26
.....	58 00	172 45	40	20	60
.....	58 00	173 00	3	5	8
.....	57 55	173 00	25	15	40
.....	58 00	173 00	95	95	190
.....	58 00	173 00	50	66	116
.....	58 10	173 10	10	29	39
.....	57 50	173 00	10	8	18
.....	57 55	173 05	5	4	9
.....	55 40	172 00	10	38	48
.....	56 45	172 30	50	56	106
.....	57 00	172 40	15	20	35
.....	57 50	173 04	9	8	17
.....	57 56	173 10	112	110	222
.....	58 00	173 10	28	31	59
.....	58 03	175 00	30	29	59
.....	57 55	173 15	50	52	102
.....	58 05	173 07	70	80	150
.....	58 00	173 30	60	70	130
.....	58 00	173 30	28	23	51
.....	58 03	173 22	100	90	190
.....	58 10	173 10	40	48	88
.....	58 15	173 20	21	20	41
.....	58 20	173 10	30	41	71
al.....	.....	.....	938	1,009	1,947

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER LABRADOR (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 3	55 05	167 00	3	10	13
4	55 00	167 10	12	70	82
5	54 32	166 20	27	10	37
6	54 40	167 00	10	16	26
8	55 13	166 45	4	14	18
9	55 04	167 25	1	7	8
10	54 50	167 05	20	32	52
12	54 55	167 20	48	100	148
16	54 45	167 24	1	2	3
18	54 40	167 30	33	100	133
19	54 25	167 10	20	20	40
Total			179	381	560

CANADIAN SCHOONER SAUCY LASS (BERING SEA).

1894.	N.	W.			
Aug. 6	54 28	166 44	7	9	16
22	54 28	172 13	25	39	64
27	55 08	169 01	6	10	16
28	54 30	168 16	29	25	54
30	54 44	167 42	40	69	109
Sept. 1	55 09	167 33	90	109	199
2	54 56	167 40	7	9	16
5	55 24	166 52	6	10	16
8	54 56	167 49	8	6	14
9	55 07	167 30	20	26	46
10	55 23	167 54	5	7	12
13	54 52	167 40	8	10	18
15	55 05	167 30	25	27	52
16	54 51	167 14	8	12	20
18	54 05	166 40	6	10	16
Total			290	378	668

CANADIAN SCHOONER BOREALIS (BERING SEA).

1894.	N.	W.			
Aug. 1	57 36	166 43	.....	3	3
3	56 04	167 22	.....	6	6
4	56 12	167 21	4	28	32
5	56 05	167 22	4	33	37
7	55 33	170 25	2	184	186
8	55 27	170 21	3	25	28
9	55 26	170 14	5	33	38
10	55 27	170 55	6	198	204
11	55 36	171 00	3	38	41
12	55 20	171 00	1	4	5
14	55 26	171 09	.....	1	1
15	55 32	170 36	1	19	20
18	55 27	169 54	4	41	45
19	55 30	170 36	1	1	2
22	55 31	170 04	.....	1	1
23	55 44	171 15	1	2	3
25	56 34	172 20	.....	2	2
27	56 37	172 11	.....	6	6
28	56 50	172 49	6	89	95
29	56 49	172 49	1	26	27
30	56 33	172 33	.....	8	8
Sept. 1	55 30	170 05	4	77	81
4	55 35	168 30	.....	1	1
5	54 59	168 42	9	48	57
6	55 06	168 33	12	74	86
7	55 02	168 10	7	49	56
12	55 20	169 41	16	62	78
Total			90	1,059	1,149

here fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER KATHERINE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
.....	56 05	173 09	2	2	4
.....	56 23	172 57	20	13	33
.....	56 30	173 17	40	21	61
.....	56 35	174 09	3	20	23
.....	56 30	173 30	28	31	59
.....	56 25	173 10	3	4	7
.....	56 27	173 00	5	9	14
.....	56 20	172 01	16	100	116
.....	56 20	172 10	50	11	61
.....	56 25	172 50	1	3	4
.....	56 18	173 11	2	8	10
.....	56 14	173 15	8	4	12
.....	56 16	172 45	9	24	33
.....	56 18	172 22	5	12	17
.....	56 05	172 16	8	54	62
.....	56 30	174 00	1	3	4
.....	54 20	168 30	30	4	34
.....	54 10	168 25	38	51	89
.....	54 16	168 35	6	42	48
.....	54 22	167 40	57	37	94
.....	54 15	167 45	20	25	45
.....	54 20	167 30	105	52	157
.....	54 40	167 25	13	24	37
.....	54 25	167 20	.....	2	2
.....	54 35	167 06	20	13	33
1.....	.....	.....	490	569	1,059

CANADIAN SCHOONER AINOKO (BERING SEA).

1894.	N.	W.			
.....	54 56	171 12	8	1	9
.....	55 05	171 49	20	6	26
.....	55 07	172 44	60	41	101
.....	56 42	173 54	13	9	22
.....	56 55	173 30	14	13	27
.....	56 48	173 34	12	4	16
.....	56 50	173 28	5	3	8
.....	56 35	173 13	15	12	27
.....	56 37	172 40	18	.....	18
.....	54 29	168 59	5	.....	5
.....	54 30	168 45	42	24	66
.....	54 23	169 12	35	6	41
.....	55 05	167 31	70	45	115
.....	54 47	169 02	25	24	49
.....	55 03	168 08	10	6	16
.....	54 42	167 42	7	5	12
.....	54 35	167 33	62	58	120
.....	54 45	168 39	75	43	118
.....	54 34	168 19	62	18	80
.....	54 57	168 06	61	18	79
.....	54 12	168 13	5	12	17
.....	54 23	168 27	107	65	172
.....	54 28	168 43	8	20	28
.....	54 31	168 30	1	3	4
.....	54 23	168 43	69	26	95
.....	55 00	168 35	32	20	52
.....	55 05	168 37	14	25	39
.....	55 16	168 42	76	10	86
.....	55 07	168 06	30	7	37
.....	54 53	168 27	10	1	11
.....	55 04	168 08	45	10	55
.....	55 07	168 01	68	30	98
.....	54 27	166 23	8	.....	8
1.....	.....	.....	1,092	565	1,657

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER KATE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 3	55 56	167 31	1	5	6
4	56 21	167 28	1	20	21
5	57 37	166 43	1	14	15
7	58 40	167 48	.....	1	1
10	58 03	172 00	4	11	15
11	58 01	172 30	4	7	11
15	55 29	171 14	.....	8	8
18	55 05	170 20	5	38	43
22	54 41	168 50	29	54	83
23	54 37	169 00	36	67	103
25	54 51	167 56	3	3	6
26	54 47	168 42	.....	9	9
27	54 49	169 06	31	62	93
28	54 36	169 24	15	45	60
29	54 31	168 43	1	3	4
30	54 39	168 41	10	44	54
31	54 45	167 59	3	3	6
Sept. 1	54 58	168 03	52	40	92
2	54 29	168 25	8	11	19
4	54 18	167 40	1	1	2
5	54 42	167 37	12	12	24
6	54 45	168 23	.....	2	2
7	55 05	168 56	9	10	19
8	54 32	169 00	15	13	28
9	54 45	168 35	12	19	31
12	54 50	167 37	1	.....	1
13	54 47	167 39	12	15	27
14	54 47	167 39	8	10	18
15	54 41	167 33	25	34	59
16	54 35	165 24	4	3	7
Total	.....	.....	303	564	867

CANADIAN SCHOONER VENTURE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 1	54 36	163 37	9	11	20
2	55 02	166 18	.....	1	1
3	55 00	167 11	5	7	12
4	55 24	167 17	21	31	52
5	55 14	167 36	4	6	10
6	55 28	167 14	.....	1	1
7	55 26	168 15	.....	2	2
8	55 12	168 50	1	2	3
11	55 05	169 55	5	6	11
12	54 49	169 55	44	34	78
15	54 38	170 08	6	9	15
18	54 48	169 43	16	13	29
19	54 53	169 46	5	7	12
22	54 23	168 27	47	63	110
23	54 23	168 20	5	13	18
24	54 24	168 05	16	24	40
27	54 33	168 13	19	41	60
28	54 38	168 14	27	42	69
29	54 36	168 18	14	21	35
30	54 31	168 19	13	19	32
31	54 50	168 11	21	17	38
Sept. 1	54 46	168 08	74	87	161
2	54 59	168 01	5	3	8
5	54 48	168 04	12	7	19
7	54 37	167 58	3	1	4
9	54 35	168 12	13	5	18
13	54 49	168 36	5	2	7
14	54 38	168 20	2	1	3
15	54 39	167 51	24	16	40
18	54 26	161 07	1	.....	1
Total	.....	.....	417	492	909

where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER WALTER L. RICH (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
.....	55 05	166 48	1	23	24
.....	55 17	166 51	3	7	10
.....	55 17	166 51	53	50	103
.....	55 10	167 10	10	4	14
.....	55 00	166 36	20	5	25
.....	55 15	167 44	37	19	56
.....	55 11	167 59	96	80	176
.....	55 05	167 10	73	6	79
.....	55 12	167 20	12	2	14
.....	54 56	167 45	143	36	179
.....	55 00	167 30	60	4	64
.....	54 58	168 20	87	16	103
.....	54 40	168 44	12	22	34
.....	54 48	168 10	3	25	28
.....	54 53	168 00	12	31	43
.....	55 05	168 10	3	32	35
.....	54 35	168 10	30	75	105
.....	54 35	168 15	40	45	85
.....	54 42	167 45	32	14	46
.....	54 36	168 34	60	34	94
.....	54 40	167 50	133	145	278
.....	54 40	168 22	21	9	30
.....	54 50	166 54	53	60	113
.....	54 40	166 25	6	5	11
tal.....	.....	.....	1,000	749	1,749

CANADIAN SCHOONER MINNIE (BERING SEA).

1894.	N.	W.			
.....	54 48	165 51	20	45	65
.....	54 37	165 31	2	1	3
.....	55 12	165 07	16	28	44
.....	55 28	166 29	.....	1	1
.....	55 03	166 44	18	23	41
.....	54 50	166 30	21	55	76
.....	54 55	166 31	7	6	13
.....	54 43	166 14	.....	1	1
.....	54 44	165 29	31	41	72
.....	54 51	165 30	24	63	87
.....	54 23	168 30	12	27	39
.....	54 52	168 24	.....	1	1
.....	54 47	168 13	.....	1	1
.....	54 54	168 00	47	114	161
.....	54 53	168 07	12	44	56
.....	54 31	167 39	4	14	18
.....	54 48	167 34	15	58	73
.....	55 09	168 00	18	50	68
.....	54 59	168 23	.....	1	1
.....	54 39	168 03	14	3	17
.....	55 05	167 42	33	20	53
.....	55 04	167 39	81	60	141
.....	54 55	167 35	103	90	193
.....	54 54	167 49	58	30	88
.....	55 06	167 55	10	12	22
.....	55 09	167 36	76	116	192
.....	55 16	167 51	12	9	21
.....	55 20	168 00	10	15	25
.....	55 14	167 41	8	10	18
.....	55 02	167 30	6	11	17
.....	55 52	167 25	1	2	3
.....	55 08	167 22	1	.....	1
.....	55 07	167 19	14	20	34
.....	55 02	168 08	5	9	14
.....	.....	.....	.....	5	5
tal.....	.....	.....	679	986	1,665

a Boat of schooner *Minnie* picked up by schooner *Favorite* with 5 skins.

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER SAN JOSE (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 3	54 54	166 28	2	2	4
4	54 54	166 28	10	74	84
5	55 01	167 05	8	15	23
6	55 01	167 23	12	20	32
8	55 12	168 15	4	5	9
10	55 04	169 04	2	1	3
11	55 02	170 37	2	1	3
12	55 13	170 55	3	2	5
18	55 11	168 10	8	3	11
19	54 25	166 34	30	13	43
23	54 56	166 44	15	8	23
24	54 54	167 33	13	4	17
25	55 29	168 00	.....	1	1
26	55 10	166 54	.....	2	2
27	54 57	167 13	.....	26	26
28	54 55	167 30	3	40	43
29	55 01	167 11	6	20	26
30	55 04	167 50	14	40	54
31	54 57	168 06	4	9	13
Sept. 1	55 11	168 36	7	50	57
2	55 13	168 36	9	20	29
4	55 17	168 10	4	9	13
5	55 15	168 55	20	50	70
6	55 15	169 20	43	80	123
7	55 14	169 24	1	2	3
8	55 00	169 00	10	20	30
9	55 05	168 10	14	40	54
10	55 16	168 25	3	7	10
11	54 48	169 03	1	2	3
13	54 35	166 36	4	18	22
15	54 28	166 00	4	9	13
Total	.....	.....	256	593	849

CANADIAN SCHOONER KILMENY (BERING SEA).

1894.	N.	W.			
Aug. 6	55 30	165 00	8	11	19
8	55 00	166 00	7	2	9
9	55 10	165 00	1	.....	1
10	55 00	167 00	6	7	13
11	55 55	166 30	2	.....	2
13	55 30	167 00	50	43	93
18	55 12	167 00	2	3	5
20	55 10	167 40	50	59	109
22	55 00	167 00	10	11	21
23	55 00	165 00	4	4	8
24	55 10	166 00	20	15	35
25	54 40	166 25	4	8	12
28	54 20	168 20	4	2	6
29	54 40	167 00	53	43	96
30	54 50	167 20	4	40	44
31	54 30	167 40	4	10	14
Sept. 1	54 30	167 30	40	34	74
2	54 35	167 28	29	9	38
7	54 40	167 15	1	4	5
8	54 10	167 15	3	6	9
9	54 35	167 20	3	10	13
10	54 40	167 05	.....	2	2
13	54 00	166 03	1	2	3
15	53 15	165 10	1	2	3
Total	.....	.....	307	327	634

Positions where fur seals were taken by American and Canadian vessels in Bering Sea and the North Pacific Ocean in 1894—Continued.

CANADIAN SCHOONER HENRIETTA (BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1894.	N.	W.			
Aug. 18	54 50	166 20	8	15	23
19	55 00	166 30	15	24	39
24	55 46	166 30	18	21	39
28	54 40	168 46	12	11	23
29	54 16	169 19	100	20	120
30	54 05	169 27	21	5	26
31	54 47	169 16	12	15	27
Sept. 1	54 57	168 53	120	65	185
2	54 58	169 10	40	21	61
5	55 02	168 52	20	31	51
6	55 15	168 40	10	32	42
7	55 00	169 36	3	4	7
8	55 05	169 34	3	9	12
9	55 10	168 56	20	33	53
15	54 40	167 00	25	34	59
Total			427	340	767

CANADIAN SCHOONER SHELBY (BERING SEA).

1894.	N.	W.			
Aug. 7	54 40	167 32	4	4	8
8	54 50	168 14	3	2	5
10	55 14	170 32	27	28	55
11	55 20	170 44	3	1	4
13	55 41	171 50	2	3	5
15	55 38	171 07	1	2	3
18	55 52	172 35	2	5	7
22	55 05	171 54	7	2	9
26	56 32	171 55	.....	1	1
27	56 10	172 58	10	3	13
28	56 20	172 02	24	11	35
29	56 19	170 03	4	.....	4
31	55 28	170 59	4	3	7
Sept. 1	55 19	170 38	10	4	14
2	55 14	170 31	16	6	22
5	55 32	169 46	2	1	3
6	55 32	170 37	17	14	31
7	55 23	170 34	4	3	7
8	55 06	170 30	30	26	56
9	55 13	170 18	28	15	43
17	55 32	169 14	16	3	19
19	55 28	170 11	13	3	16
20	55 21	170 07	5	5	10
Total			232	145	377

Positions where fur seals were taken in 1894 off the Japan coast by Canadian and American vessels.

[Data collected by C. H. Townsend and A. B. Alexander.]

CANADIAN SCHOONER UMBRINA (JAPAN COAST), CAMPBELL, MASTER.

Date.	Latitude.	Longitude.	Seals.
1893.	N.	W.	
Dec. 28	43 40	141 00	31
29	43 40	142 00	
1894.			
Jan. 1	41 24	150 00	
5	40 19	146 10	
15	39 06	173 55	
		E.	
Mar. 17	37 20	145 04	17
18	37 13	143 04	5
19	37 30	144 37	1
21	37 05	146 40	90
22	37 12	146 20	11
23	37 16	146 27	67
24	37 10	145 15	90
25	37 20	145 25	60
26	37 40	146 19	56
Apr. 1	37 40	146 07	79
2	37 25	146 00	135
3	37 15	145 38	88
4	37 20	142 20	48
5	37 10	.....	.....
6	37 20	145 40	42
7	37 17	145 26	103
8	37 35	145 33	41
11	37 24	145 40	18
12	37 27	146 05	57
13	37 20	146 00	74
16	37 30	146 08	23
17	37 12	145 50	1
18	37 14	145 45	15
19	37 19	146 00	91
20	37 16	146 03	33
22	36 55	145 50	58
23	37 06	145 45	33

Date.	Latitude.	Longitude.	Seals.
1894—Continued.	N.	E.	
Apr. 26	36 40	146 25	84
27	36 48	146 ..	14
28	36 50	(a)	1
29	37 34	146 23	19
30	37 35	145 55	16
May 1	36 56	145 55	70
8	36 40	145 47	19
12	37 40	146 50	104
14	37 49	146 58	21
15	37 51	147 26	119
18	37 16	145 00	1
21	38 11	146 35	61
22	38 22	146 25	51
23	38 37	146 10	57
24	38 36	146 20	9
26	40 11	144 46	27
28	41 50	144 12	7
29	41 35	145 00	2
31	43 03	147 30	6
June 5	41 23	145 40	5
6	40 55	145 56	92
7	.. 29	146 10	11
8	40 37	146 02	31
9	40 45	145 50	79
10	40 46	145 52	55
12	40 30	145 41	36
13	40 40	146 00	.....
14	41 09	145 37	4
15	41 02	145 55	8
16	40 00	145 55	1
17	41 57	146 08	15
18	43 10	147 12	2
19	43 41	147 30	81
21	43 45	147 05	9
22	43 40	147 10	11

a No observation.

AMERICAN SCHOONER EDWARD E. WEBSTER (JAPAN COAST), McLEAN, MASTER.

1894.	N.	E.	
Jan. 29	37 46	146 15	29
Feb. 2	38 00	144 40	30
5	36 35	145 00	17
17	38 30	146 00	61
24	36 30	145 46	27
Mar. 5	37 32	144 35	25
15	38 01	146 16	31
19	38 10	145 30	36
21	38 00	146 10	47
23	37 20	145 27	65
24	37 20	145 30	57
26	38 31	146 18	28
Apr. 1	37 11	145 21	61
2	37 07	145 35	58
3	37 02	145 25	40
4	37 06	145 20	17
5	36 56	145 40	29
8	37 15	146 10	33
10	38 00	146 03	26
11	39 10	145 51	47
12	39 10	145 51	73

1894.	N.	E.	
Apr. 16	40 00	144 20	27
18	37 40	145 25	17
19	37 40	145 07	128
22	36 57	145 00	84
26	36 44	144 33	101
May 23	40 00	144 00	17
24	40 10	144 08	21
30	39 52	143 30	41
June 1	41 04	142 20	29
3	41 42	142 30	34
6 *a*	.....	.....	38
8	41 14	143 18	18
10	41 10	143 15	22
13	41 24	142 36	34
		W.	
28	42 02	179 02	30
29	42 04	178 15	7
July 1	42 12	177 20	17
2	43 30	177 00	11
8	42 56	175 15	27
9	43 15	174 44	38

a Cape Yerimo east 25 miles.

sitions where fur seals were taken in 1894 off the Japan coast by Canadian and American vessels—Continued.

AMERICAN SCHOONER ALLIE I. ALGAR (JAPAN COAST), WESTER, MASTER.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1894.	N.	E.		1894.	N.	E.	
ar. 23	39 22	144 23	8	May 12	41 57	143 08	17
24	39 45	142 57	37	13	42 05	142 38	28
26	40 00	144 00	23	14	41 35	142 40	31
29	39 12	143 18	2	21	42 50	143 50	6
31	40 00	144 00	36	24	42 35	144 56	50
pr. 1	39 54	144 17	17	25	(a)	(a)	8
3	39 15	144 06	78	26	(a)	(a)	30
4	39 25	144 24	32	29	(a)	(a)	7
6	39 28	143 31	16	June 1	(a)	(a)	34
8	39 25	143 10	47	6	43 16	147 00	12
18	39 29	142 54	38	7	(a)	(a)	34
23	39 27	142 21	10	8	(a)	(a)	32
24	39 51	142 00	3	9	(b)	(b)	102
25	40 15	142 23	29	10	(b)	(b)	22
26	40 13	143 00	40	12	(b)	(b)	67
27	(a)	(a)	2	18	(b)	(b)	20
30	40 03	143 06	26	19	(b)	(b)	19
ay 2	(a)	(a)	45	July 23	53 48	167 32	2
3	(a)	(a)	11	24	53 57	168 56	6
7	41 39	142 05	47	25	55 02	169 59	3
11	41 36	143 20	25	26	55 36	169 13	4

a No position. b Ten miles off Scoutan Island.

AMERICAN SCHOONER LOUIS OLSEN (JAPAN COAST), GUILLAMS, MASTER.

1894.	N.	E.		1894.	N.	E.	
ar. 12	36 26	145 23	1	May 16	40 55	142 58	3
13	36 17	145 43	7	17	41 45	143 35	35
15	36 23	147 41	67	19	41 37	143 03	65
17	38 36	147 52	14	20	41 57	142 27	19
19	37 40	146 15	42	21	(a)	(a)	50
21	37 47	144 22	6	24	41 00	143 00	30
pr. 1	38 16	146 46	54	25	41 47	142 28	3
2	38 22	147 30	50	28	42 38	142 54	7
3	39 20	146 05	15	30	42 42	144 58	15
4	38 59	146 46	8	31	42 38	144 38	63
5	38 34	145 47	39	June 1	42 46	145 03	35
6	38 20	145 50	30	2	42 38	143 57	10
8	38 08	144 52	24	3	42 37	144 06	5
12	40 13	144 18	10	4	42 22	144 30	10
18	37 06	145 56	5	5	42 52	144 53	3
19	37 02	146 03	53	6	42 59	144 57	12
20	37 30	146 20	28	7	42 55	145 28	12
22	37 08	146 39	8	8	42 42	145 56	11
23	37 18	146 03	33	9	42 37	145 59	33
26	36 15	146 26	60	10	42 56	146 08	2
28	36 41	146 09	8				
29	37 14	146 15	5	Total			b 1,055
30	37 01	146 05	29				
ay 1	35 54	144 43	36				

a Cape Yerimo SE. by E. 28 miles.
b Fifty-seven seals additional belong to the catch; they were taken by the boats that went astray d were picked up by the *Penelope*, making the total catch 1,112.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895.

[From official sources.]

AMERICAN SCHOONER J. EPPINGER (BERING SEA), MICHAEL WHITE, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Aug. 1	54 55	167 47	6	5	11
2	55 07	167 27	3	5	8
4	54 58	167 16	1	3	4
9	54 59	167 40	1	.....	1
10	54 40	167 30	8	42	50
11	54 46	167 46	13	48	61
12	54 54	167 47	1	3	4
14	55 17	168 00	1	4	5
15	54 55	168 01	12	23	35
16	54 35	168 35	.....	1	1
17	54 38	168 40	13	22	35
18	54 35	168 35	.....	2	2
19	54 30	168 30	.....	1	1
20	54 46	167 52	8	27	35
21	54 46	167 52	7	16	23
22	54 17	167 51	7	16	23
24	55 23	169 00	2	3	5
25	55 07	173 40	10	22	32
26	56 08	173 50	5	11	16
27	57 04	173 03	7	10	17
28	56 44	173 25	.....	1	1
Sept. 1	56 40	172 40	4	25	29
2	56 33	172 32	4	41	45
8	56 18	175 10	.....	2	2
			113	333	446
9	56 50	174 22	.....	5	5
15	54 20	169 35	.....	1	1
Total	.....	.....	113	339	452

AMERICAN SCHOONER HERMAN (JAPAN COAST AND BERING SEA), SCOTT, MASTER.

1895.	N.	E.			
Mar. 20	a 36 47	145 26	.....	.....	1
21	36 45	145 40	.....	.....	4
27	36 40	145 05	.....	.....	1
Apr. 1	36 44	146 20	.....	.....	40
2	36 39	146 06	.....	.....	26
3	b 36 44	145 50	.....	.....	2
5	b 36 40	146 24	.....	.....	4
11	b 38 38	146 17	.....	.....	1
12	39 02	146 14	.....	.....	7
13	38 48	146 32	.....	.....	13
15	38 06	146 35	.....	.....	9
16	37 30	146 28	.....	.....	21
18	37 28	146 52	.....	.....	5
19	37 30	146 35	.....	.....	7
23	39 27	143 02	.....	.....	1
25	39 25	142 51	.....	.....	5
26	39 22	142 45	.....	.....	4
27	39 23	142 25	.....	.....	5
28	39 31	142 21	.....	.....	66
29	39 27	142 40	.....	.....	3
30	39 36	142 30	.....	.....	11
May 1	39 26	142 31	.....	.....	17
3	40 22	142 28	.....	.....	7
4	40 31	142 16	.....	.....	38
5	40 38	142 31	.....	.....	9
6	40 59	141 56	.....	.....	19
7	40 54	141 47	.....	.....	23
8	41 12	142 00	.....	.....	2
9	Cruising from 20 to 40 miles E. off Cape Yesan.		.....	.....	5
10	Cape Yesan W. about 20 miles.		.....	.....	11
12	41 53	142 18	.....	.....	10
13	42 13	141 26	.....	.....	10
14	41 48	142 25	.....	.....	33
15	42 07	142 40	.....	.....	18
16	41 51	142 31	.....	.....	1

a Observation. b Dead reckoning.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER HERMAN (JAPAN COAST AND BERING SEA), SCOTT, MASTER—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
May 17	Cape Yerimo N. 20 miles.				1
20	41 49	142 27			29
23	41 58	142 07			19
24	41 50	142 20			29
25	Cape Yerimo ENE. ½ E.				13
26	Distance 30 miles.				9
June 1	Shotan NW. 15 miles.				2
2	Shotan NNE. 10 miles.				14
7	W. end of Yetorufie Island NW. 25 miles.				16
8	do				8
10	S. side west end W. 25 miles.				23
12	10 miles S. of Jap Bay, Yetorufie.				1
13	44 57	147 51			13
14	W. end Yetorufie Island NW. 25 miles.				2
15	W. end Yetorufie Island NNW. 35 miles.				7
16	Otter Island N. 6 miles, S. of Yetorufie.				1
17	Otter Island N. 10 miles.				5
18	W. end of Yetorufie NNW. 12 miles.				6
23	45 19	149 27			1
	N.	W.			
Aug. 1	56 07	167 15		10	10
2	56 10	166 25	4	10	14
10	55 45	164 51		1	1
12	56 19	165 10		4	4
14	55 19	168 11		1	1
15	55 08	168 47	6	14	20
17	56 45	172 43	1	11	12
18	56 37	173 43		4	4
19	57 18	173 29	1	5	6
20	57 18	173 30		11	11
21	56 27	173 43		2	2
22	55 55	173 21	8	28	36
23	56 03	173 21	7	14	21
25	55 56	173 23	9	19	28
26	55 54	173 45	14	17	31
27	56 02	173 35	16	53	69
28	56 12	173 32	1	9	10
31	56 56	172 50	5	8	13
Sept. 1	55 56	172 35	22	60	82
2	55 49	172 55	4	12	16
8	56 42	173 41	1	3	4
9	56 16	173 37	3	31	34
13	57 44	172 39	1		1
Total			103	327	1,067

AMERICAN SCHOONER EDWARD E. WEBSTER (JAPAN COAST AND BERING SEA), A. C. FOLGER, MASTER.

1895.	N.	E.			
Mar. 20	a 37 22	141 55			15
21	37 34	142 04			100
22	37 17	141 45			14
24	37 38	143 02			1
Apr. 3	38 46	145 00			10
4	39 06	143 53			11
8	39 10	142 31			21
10	39 08	142 20			12
11	38 53	142 26			21

a Observation.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER EDWARD E. WEBSTER (JAPAN COAST AND BERING SEA), A. C. FOLGER, MASTER—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
Apr. 14	38 50	142 30			
19	39 48	142 32			
20	39 47	142 39			
22	39 37	143 26			
23	39 24	(a)			
27	39 49	142 32			
28	39 50	142 17			
30	39 45	142 24			4
May 2	41 26	143 02			4
3	41 50	142 53			10
4	41 53	142 02			3
5	42 18	141 24			15
6	41 14	141 20			8
7	42 11	141 18			34
8	42 20	141 16			34
10	42 16	141 05			6
12	42 27	(a)			10
13	42 09	141 00			13
14	(a)	(a)			8
15	41 47	143 05			22
23	43 04	146 55			28
24	43 18	146 51			13
25	43 24	146 24			18
26	43 26	146 23			41
31	43 26	146 23			4
June 1	43 28	146 50			4
2	43 50	147 02			3
6	44 10	147 10			9
7	(a)	(a)			27
8	(a)	(a)			29
10	(a)	(a)			18
13	44 20	147 30			25
14	(a)	(a)			9
15	(a)	(a)			9
18	44 12	147 15			15
19	(a)	(a)			9
	N.	W.			5
Aug. 9	b 55 10	171 35		3	3
10	55 30	171 30	2	13	15
11	c 54 56	171 40	6	21	27
12	c 55 13	171 15	3	17	20
15	c 56 01	171 45	3	22	25
17	c 55 08	171 01	9	15	24
18	c 55 08	170 30	1	2	6
20	c 55 25	169 10	13	50	63
21	c 55 27	169 36	12	24	23
22	c 55 16	169 59	4	16	20
24	c 54 56	168 00	2	4	6
26	c 54 57	168 55	2	6	8
27	c 54 54	168 55	3	6	9
28	c 55 54	168 56	2	2	4
Sept. 1	c 54 50	168 00	3	4	7
8	c 47 47	165 18	1		1
Total			66	205	1,037

a Not noted on log. b Dead reckoning. c Observation.

AMERICAN SCHOONER ALTON (JAPAN COAST AND BERING SEA), A. J. ANDERSON, MASTER.

1895.	N.	E.			
Mar. 26	36 40	141 23			6
27	37 07	141 54			1
29	37 50	144 00			1
30	38 59	144 00			3
Apr. 2	38 55	144 57			14
7	41 40	143 28			1
10	41 18	141 52			1
11	40 14	142 51			20

re fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

SCHOONER ALTON (JAPAN COAST AND BERING SEA), A. J. ANDERSON, MASTER—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1885.	N.	E.			
.....	39 53	143 07	.....	.....	40
.....	39 33	142 45	.....	.....	5
.....	39 55	142 5	.....	.....	1
.....	39 42	143 40	.....	.....	31
.....	39 56	144 00	.....	.....	16
.....	39 34	143 00	.....	.....	12
.....	39 47	143 05	.....	.....	19
.....	39 06	143 00	.....	.....	3
.....	40 14	142 49	.....	.....	6
.....	40 24	142 52	.....	.....	56
.....	40 13	142 48	.....	.....	20
.....	40 30	142 17	.....	.....	9
.....	40 39	142 50	.....	.....	6
.....	41 50	142 15	.....	.....	4
.....	41 33	143 00	.....	.....	16
.....	42 13	145 41	.....	.....	3
.....	42 26	144 00	.....	.....	1
.....	40 14	142 49	.....	.....	1
.....	40 22	142 56	.....	.....	3
.....	41 30	142 16	.....	.....	4
.....	41 36	142 51	.....	.....	3
.....	43 00	145 40	.....	.....	2
.....	42 03	147 04	.....	.....	3
.....	42 47	166 00	.....	.....	1
.....	43 58	174 16	.....	.....	1
.....	23 01	178 48	.....	.....	1
.....	42 40	179 10	.....	.....	1
.....	55 01	178 44	1	.....	1
.....		W.			
.....	55 15	167 40	.....	1	1
.....	55 04	167 36	.....	1	1
.....	55 07	167 46	.....	1	1
.....	55 32	169 03	.....	2	2
.....	55 11	169 40	5	6	11
.....	55 23	169 47	3	15	18
.....	55 22	170 24	.....	1	1
.....	55 31	170 43	3	9	12
.....	55 13	171 14	4	9	13
.....	55 24	170 55	5	10	15
.....	55 25	170 46	1	.....	1
.....	55 07	169 26	6	7	13
.....	55 01	169 15	7	14	21
.....	54 55	169 00	1	1	2
.....	55 16	169 38	1	3	4
.....	55 20	169 37	6	16	22
.....	55 21	170 00	2	2	4
.....	.....	.....	45	98	458

SCHOONER MATTIE T. DYER (JAPAN COAST), C. E. MOCKLER, MASTER.

	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
	N.	E.		1895.	N.	E.	
.....	54 00	166 00	12	Aug. 27.....	54 34	164 40	48
.....	53 40	166 04	10	30.....	54 20	163 30	7
.....	53 38	166 14	1	31.....	54 30	163 40	14
.....	55 12	164 10	2	Sept. 2.....	55 45	(b)	1
.....	53 43	170 10	1	3.....	55 45	163 50	3
.....	(a)	(a)	4	4.....	54 38	163 20	13
.....	53 28	165 47	8	8.....	(a)	(a)	2
.....	54 18	165 47	5	9.....	54 38	162 30	1
.....	54 20	165 10	12				
.....	54 37	164 10	1	Total	.....	.....	149
.....	54 16	164 10	4				

a No observation. b No longitude.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER EMMA AND LOUISA (BERING SEA), A. McLEAN, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Date.	Latitude.	Longitude.	Males.	Females.
1895.	N.	W.			1895.	N.	W.		
Aug. 8	55 08	171 14	.....	3	Aug. 25	55 47	173 00	2	1
10	55 48	171 48	.....	7	26	55 44	173 15	18	35
11	56 30	172 18	3	16	27	55 50	173 15	22	29
12	56 12	172 55	4	29	28	55 59	173 10	14	9
14	56 20	173 01	1	4	Sept. 1	57 27	172 56	2	1
15	56 07	173 00	3	20	2	57 00	172 48	2	28
16	56 15	173 20	.....	1	3	57 00	173 00	.....	11
17	56 17	173 30	2	22	8	56 50	174 03	2	8
18	56 06	173 37	1	12	9	57 21	173 00	.....	3
19	56 02	173 12	3	21	10	57 12	173 07	2	13
20	56 12	172 48	9	40	13	56 59	173 03	2	2
21	56 00	173 04	1	19	18	54 09	167 15	5	4
22	56 06	173 16	6	33					
23	56 10	173 30	4	19	Total	.....	.....	108	280

AMERICAN SCHOONER BONANZA (JAPAN COAST), GEORGE WESTER, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
Mar. 30	a 39 27	146 22	.....	.....	11
Apr. 2	38 33	144 20	.....	.....	5
3	39 26	142 40	.....	.....	7
5	b 39 29	142 07	.....	.....	5
13	a 37 26	145 01	.....	.....	27
16	37 15	145 44	.....	.....	26
18	36 41	145 08	.....	.....	16
19	36 30	145 01	.....	.....	13
23	b 39 48	142 40	.....	.....	6
25	a 39 28	142 37	.....	.....	10
26	39 28	142 38	.....	.....	2
27	39 48	142 48	.....	.....	41
28	39 48	142 14	.....	.....	56
30	b 39 36	142 16	.....	.....	1
May 1	a 39 16	142 21	.....	.....	35
3	40 56	142 08	.....	.....	23
4	41 07	142 16	.....	.....	12
5	41 07	141 58	.....	.....	41
6	41 21	141 58	.....	.....	62
7	41 42	142 10	.....	.....	42
8	41 34	141 54	.....	.....	[illegible]
9	b 41 31	141 36	.....	.....	[illegible]
10	.....	.....	.....	.....	[illegible]
12	a 42 07	142 02	.....	.....	19
13	42 03	141 59	.....	.....	62
14	41 52	142 08	.....	.....	40
15	41 49	142 27	.....	.....	26
17	.....	.....	.....	.....	9
23	a 42 33	145 53	.....	.....	11
24	42 42	145 47	.....	.....	19
25	42 42	145 46	.....	.....	57
26	42 48	145 34	.....	.....	2
27	42 58	145 30	.....	.....	2
28	42 58	145 59	.....	.....	1
30	42 32	146 35	.....	.....	3
31	43 11	147 30	.....	.....	5
June 2	43 05	146 32	.....	.....	8
5	43 38	146 58	.....	.....	2
6	43 31	146 50	.....	.....	13
7	b 43 43	147 04	.....	.....	10
8	.....	.....	.....	.....	1
10	a 43 23	146 42	.....	.....	3
14	b 43 50	147 10	.....	.....	9
16	.....	.....	.....	.....	2
17	b 43 43	146 52	.....	.....	9
18	a 44 01	147 51	.....	.....	17
Aug. 9	57 20	172 54	.....	3	3
10	57 40	172 47	2	2	4
12	b 57 38	172 47	1	2	3
14	a 55 18	170 40	2	6	8
15	55 26	170 13	4	48	52
17	55 17	170 32	17	38	55
20	55 06	169 47	1	10	11

a Observation. b Dead reckoning.

here fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

N SCHOONER BONANZA (JAPAN COAST), GEORGE WESTER, MASTER—Cont'd.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
.....	54 55	170 30	5	5	10
.....	*a* 55 06	169 50	2	17	19
.....	*b* 54 32	168 03	3	2	5
.....	54 44	167 54	7	1	8
.....	55 20	170 30	.....	1	1
.....	55 15	169 23	6	12	18
.....	55 15	169 24	33	34	67
.....	55 14	169 41	6	6	12
.....	55 28	171 31	1	1	2
.....	55 34	171 51	2	4	6
.....	54 46	171 07	.....	1	1
.....	55 05	170 50	.....	3	3
.....	*a* 55 00	169 50	1	.....	1
d.....	.....	.....	93	196	1,215

a Dead reckoning. *b* Observation.

ICAN SCHOONER BOWHEAD (JAPAN COAST), W. P. NOYES, MASTER.

1895.	N.	W.			
.....	36 14	123 44	.....	18	18
		E.			
.....	36 48	146 01	1	9	10
.....	36 40	145 50	3	11	14
.....	36 42	145 10	.....	2	2
.....	36 21	145 48	3	24	27
.....	36 20	146 01	10	46	56
.....	36 20	145 43	6	17	23
.....	36 37	146 00	2	6	8
.....	36 05	145 36	4	12	16
.....	37 11	146 28	1	1	2
.....	37 01	146 09	1	.....	1
.....	37 12	146 08	8	27	35
.....	37 17	146 31	7	23	30
.....	39 09	146 40	8	7	15
.....	39 26	146 34	1	1	2
.....	39 40	147 17	5	7	12
.....	39 38	147 22	11	14	25
.....	39 50	147 25	1	3	4
.....	39 57	148 08	.....	1	1
.....	39 40	148 40	3	3	6
.....	40 12	148 30	16	22	38
.....	40 10	148 35	3	5	8
.....	39 58	148 30	8	14	22
.....	39 48	148 02	42	54	96
.....	40 00	148 15	2	2	4
.....	40 20	148 18	10	14	24
.....	40 10	148 12	17	26	43
.....	40 12	148 12	8	4	12
.....	40 01	148 34	11	10	21
.....	40 08	147 53	7	.....	7
.....	40 18	148 30	2	.....	2
.....	40 39	148 40	2	1	3
.....	40 26	146 48	3	1	4
.....	41 00	146 44	1	.....	1
.....	42 16	145 50	5	2	7
.....	42 45	145 36	8	14	22
.....	42 50	145 50	.....	1	1
.....	42 53	145 30	1	.....	1
.....	42 28	145 50	3	1	4
.....	42 45	145 35	4	2	6
.....	43 10	145 55	9	1	10
.....	43 15	146 22	5	6	11
.....	42 56	146 06	2	2	4
.....	43 00	146 05	1	.....	1
.....	43 35	147 10	1	1	2
.....	43 37	147 15	.....	1	1
.....	43 56	147 58	16	5	21
.....	43 53	173 25	1	.....	1
d.....	.....	.....	263	421	684

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER WINCHESTER (JAPAN COAST), FRANK JOHNSON, MASTER.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1894.	N.	W.		1895—Continued.	N.	E.	
Dec. 13	36 59	123 55	8	May 9	39 39	146 20	14
14	37 06	123 30	8	10	39 37	146 49	50
16	37 15	123 43	9	12	39 32	146 13	33
18	38 00	123 37	16	13	40 00	147 08	11
19	38 00	123 20	7	14	39 54	147 13	3
22	38 24	123 49	11	15	39 53	147 41	6
23	38 33	123 50	47	16	40 12	146 30	4
24	38 31	124 10	11	20	40 44	147 19	5
29	37 55	123 32	9	25	42 29	147 21	20
30	38 08	123 13	4	30	40 09	146 45	4
31	38 15	123 50	8	June 1	43 15	147 00	1
1895.				2	43 20	147 26	11
Jan. 1	38 03	123 24	1	5	42 59	147 40	3
5	37 45	123 31	3	6	43 33	147 49	5
6	37 36	123 21	27	7	43 43	147 27	10
9	37 34	122 51	1	8	43 57	147 07	6
10	36 53	123 53	45	9	43 47	147 16	1
11	36 43	123 46	17	10	43 40	147 03	4
		E.		13	43 30	148 19	16
Mar. 21	36 22	144 30	52	14	43 37	148 14	14
24	36 14	147 00	9	15	43 29	147 51	9
27	36 21	145 06	16	17	43 29	147 12	10
30	36 15	145 33	1	18	43 40	147 40	5
Apr. 1	36 30	146 10	33	19	43 30	148 16	6
2	36 39	146 02	25	30	49 30	158 52	3
3	36 25	145 49	38	July 5	52 37	165 38	2
5	36 25	145 49	16	7	52 58	166 52	1
6	36 26	146 25	7	14	53 40	168 33	4
15	39 38	142 29	18	16	53 48	168 10	29
16	39 15	142 46	18	21	53 09	168 22	11
17	40 04	142 56	4	22	53 45	168 16	4
18	40 06	143 00	13	25	53 51	168 36	2
19	39 55	143 25	44	28	53 24	167 36	8
23	40 37	143 42	8	29	53 27	168 07	10
26	42 22	145 02	1	30	53 25	168 32	11
27	42 37	144 40	2	31	53 58	168 26	1
May 4	42 25	144 30	9	Aug. 1	53 27	168 56	9
5	42 00	145 24	1	2	53 30	168 20	9
6	41 11	146 10	13	5	53 16	168 50	1
8	39 46	143 52	8	Total			923

AMERICAN SCHOONER SOPHIA SUTHERLAND (JAPAN COAST), A. C. SUTHERLAND, MASTER.

1895.	N.	E.		1895.	N.	E.	
Mar. 9	36 16	144 36	1	Apr. 30	40 41	142 21	17
13	36 53	141 46	3	May 8	41 21	142 31	15
21	36 26	144 45	54	9	41 05	142 20	45
24	38 13	142 27	12	10	41 13	141 47	21
30	39 27	143 28	6	12	40 54	142 19	3
Apr. 2	38 01	145 53	21	13	41 31	142 08	11
6	38 05	143 51	1	16	41 22	145 38	2
7	38 37	142 53	2	17	40 06	150 14	1
8	39 42	142 49	3	19	42 02	152 23	1
11	38 01	145 43	7	25	41 52	174 58	1
12	37 33	145 05	13	26	42 30	178 21	2
13	37 27	145 29	11			W.	
15	37 50	145 03	1	June 1	40 42	177 47	4
16	38 47	145 50	3	11	40 31	150 21	1
18	39 15	145 01	1	13	40 46	148 15	.....
19	38 44	145 37	6	14	(a)	(a)	6
22	39 20	144 56	1	15	40 55	147 46	3
23	39 56	145 31	28				
27	39 42	145 37	2	Total			303

a Calm. No observation.

here fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

SCHOONER RATTLER (JAPAN COAST AND BERING SEA), FREDERICK NIELSEN, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
.....	39 22	142 41	10	12	22
.....	39 18	142 32	21	17	38
.....	39 45	142 45	2	1	3
.....	39 54	142 35	7	2	9
.....	40 59	142 01	.....	2	2
.....	40 13	143 55	1	.....	1
.....	39 41	144 16	19	39	58
.....	39 35	144 48	.....	4	4
.....	39 08	145 11	.....	2	2
.....	39 42	144 55	4	21	25
.....	40 58	143 11	2	5	7
.....	40 41	142 58	11	36	47
.....	40 40	142 35	3	7	10
.....	41 01	142 47	4	4	8
.....	42 08	142 16	8	2	10
.....	42 07	142 08	12	3	15
.....	41 55	142 17	5	.....	5
.....	41 42	142 38	11	17	28
.....	41 40	142 43	3	4	7
.....	41 23	143 32	3	.....	3
.....	41 55	143 47	1	.....	1
.....	41 52	144 42	3	1	4
.....	41 40	144 00	2	.....	2
.....	41 38	142 25	11	17	28
.....	41 38	142 25	4	2	6
.....	42 08	142 10	4	1	5
.....	42 08	142 10	1	7	8
.....	42 10	142 00	2	7	9
.....	41 38	143 24	2	.....	2
.....	42 11	144 38	5	11	16
.....	42 39	145 32	3	8	11
.....	43 06	146 11	.....	1	1
.....	43 10	147 16	.....	2	2
.....	43 10	147 16	1	.....	1
.....	43 10	147 16	1	4	5
.....	44 06	148 14	2	.....	2
.....	41 42	175 56	29	12	41
.....	42 03	176 21	.....	3	3
.....	43 15	176 00	21	71	92
.....	43 09	175 58	7	24	31
.....	43 34	175 55	.....	2	2
		W.			
.....	54 57	167 45	10	21	31
.....	54 52	167 32	3	7	10
.....	55 09	169 37	3	7	10
.....	54 59	169 12	.....	1	1
.....	55 05	169 10	3	4	7
.....	55 08	169 22	12	48	60
.....	55 00	169 20	15	57	72
.....	54 49	169 10	6	7	13
.....	55 04	160 30	6	28	34
.....	54 55	169 24	3	9	12
.....	55 13	170 38	6	28	34
.....	55 11	170 36	1	1	2
.....	54 44	168 51	6	6	12
.....	54 51	169 31	.....	1	1
.....	55 05	170 38	6	24	30
.....	56 49	174 49	.....	1	1
.....	57 09	173 43	7	44	51
.....	56 55	173 51	7	29	36
.....	57 03	173 50	1	1	2
.....	57 22	173 48	.....	13	13
.....	58 36	173 32	.....	2	2
.....	57 35	173 54	3	16	19
.....	56 41	174 52	1	1	2
.....	56 54	173 47	2	5	7
.....	56 43	174 33	.....	2	2
.....	56 42	173 30	.....	1	1
.....	54 38	166 48	.....	1	1
.....	54 42	166 22	.....	5	5
.....	54 30	165 35	1	.....	1
.....	.....	.....	327	721	1,048

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER JANE GRAY (COAST OF JAPAN AND RUSSIA), S. H. BURTE MASTER.

Date.	Latitude.	Longitude.	Seals.
1895.	N.	E.	
Mar. 24	35 58	141 08	2
25	37 12	141 18	31
26	37 06	141 20	2
27	37 30	141 37	12
29	38 06	141 55	21
30	38 08	142 22	9
Apr. 2	37 40	143 20	23
3	38 07	142 30	11
5	38 29	142 20	6
9	39 31	142 25	9
12	37 40	142 21	2
15	40 19	143 13	14
16	40 27	142 15	30
17	40 28	142 05	7
18	40 15	142 16	10
19	40 11	142 25	75
20	40 09	142 24	11
22	40 50	143 00	71
23	40 00	143 00	30
25	39 37	142 22	5
27	39 58	142 30	58
28	40 09	142 12	19
30	40 50	142 15	4
May 1	41 54	142 00	6
2	41 54	142 00	32
3	41 54	142 00	33
4	41 54	142 00	89
5	41 54	142 00	32
6	41 54	142 00	94
7	41 54	142 00	55
9	41 54	142 00	1
10	41 54	142 00	16
13	41 54	142 00	14
14	41 30	142 10	24
15	41 25	142 15	51
16	41 25	142 15	8
20	41 55	142 40	26
21	41 40	142 40	4
23	41 35	142 15	19
24	41 25	142 15	23
25	41 45	142 45	14
1895.	N.	E.	
May 26	41 42	142 49	
27	41 36	142 46	
June 1	41 06	143 20	
2	41 06	143 20	
3	41 06	143 20	
5	42 30	146 24	
6	42 44	146 20	
7	42 55	146 16	
13	43 47	148 35	
14	44 00	147 10	
15	44 15	146 10	
17	44 10	146 55	
18	44 18	147 03	
19	44 12	147 28	
23	44 10	147 40	
24	43 21	148 00	
Total			a 1,
Aug. 5	52 52	164 11	
7	53 52	165 48	
8	53 59	165 49	
9	54 17	165 02	
10	55 09	163 44	
16	56 44	164 25	
17	56 09	164 10	
18	56 09	164 10	
19	56 09	164 10	
20	56 09	164 10	
21	56 09	164 10	
22	53 45	164 00	
26	54 20	165 29	
27	54 12	165 37	
28	54 01	165 39	
31	54 10	165 35	
Sept. 2	54 10	165 35	
3	54 10	165 35	
4	54 10	165 35	
Total			1

a June 19, one skin taken in trade, making 1,112 skins in all landed at Yokohama, Japan.

AMERICAN SCHOONER THERESE (BERING SEA), JOHN WORTH, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total
1895.	N.	W.			
Aug. 10	56 46	168 41	8	22	
11	a 54 58	168 50	3	8	
12	54 36	168 32	.....	2	
14	55 11	168 35	.....	1	
15	54 48	168 23	4	11	
17	56 00	172 00	2	19	
18	55 58	172 10	8	11	
19	a 56 00	172 12	11	17	
			b 31	b 91	b 1
20	56 22	172 45	11	45	
21	56 28	172 45	8	12	
22	a 56 25	172 10	4	23	
23	a 56 30	172 00	2	9	
25	56 32	172 12	5	34	
26	56 17	173 48	5	15	
27	56 39	173 30	18	53	
28	56 48	173 20	5	10	
Sept. 1	57 11	172 48	.....	3	
2	56 32	172 48	1	18	
6	56 25	174 20	1	.....	
8	56 43	172 28	4	8	
9	57 04	173 34	1	9	
Total			96	330	

a Dead reckoning.

b August 20, latitude 56° 22′ north, longitude 173° 14′ west, the above number of skins and sex fo *to be correct* by E. V. D. Johnson, lieutenant, United States revenue steamer *Perry*.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895 – Continued.

AMERICAN SCHOONER COLUMBIA (NORTHWEST COAST), CHESTOQUA PETERSON, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Jan. 24	48 07	126 00	10	5	15
25	48 10	126 01	16	15	31
26	48 06	126 00	12	3	15
27	48 12	125 58	18	9	27
28	48 15	126 03	12	4	16
29	48 00	125 58	9	7	16
Feb. 7	48 07	126 00	24	10	34
8	48 08	125 58	3	3	6
9	48 12	125 59	8	7	15
Mar. 4	48 10	125 20	3	5	8
5	48 15	125 30	1	6	7
6	48 40	125 00	2	6	8
7	47 42	125 05	4	2	6
8	48 00	125 02	2	.....	2
21	47 48	125 21	11	39	50
23	47 46	125 25	.....	3	3
24	47 39	125 25	.....	2	2
25	47 33	125 20	1	.....	1
26	47 44	125 50	12	20	32
27	47 43	125 45	2	15	17
28	47 52	125 08	2	2	4
29	47 44	125 07	13	41	54
Total	.....	.....	165	204	a 369

a Shot 40, speared 329.

Customs examination, 216 females and 153 males.

AMERICAN SCHOONER COLUMBIA (NORTHWEST COAST), O. F. CHRISTIANSON, MASTER.

1895.	N.	W.			
Aug. 1	54 34	166 55	26	35	61
2	54 35	167 07	12	8	20
3	55 07	166 39	.....	1	1
4	55 05	166 27	.....	11	11
5	54 53	166 46	3	4	7
8	54 42	166 58	1	1	2
10	54 43	166 55	18	27	45
11	54 43	166 55	16	37	53
12	54 35	166 14	3	4	7
15	55 27	167 10	6	57	63
17	55 20	167 18	.....	2	2
19	55 02	167 28	1	3	4
20	54 56	167 28	14	41	55
21	54 59	167 28	9	10	19
24	55 07	167 03	12	18	30
26	54 22	167 33	5	9	14
27	54 15	167 33	6	8	14
28	54 35	167 16	2	4	6
31	55 41	167 10	.....	1	1
Sept. 1	55 35	167 08	4	32	36
2	55 28	166 50	2	2	4
3	54 30	166 43	.....	1	1
7	55 02	166 27	4	14	18
8	55 12	166 37	2	14	16
9	54 47	166 38	2	3	5
10	54 35	166 31	11	22	33
11	54 51	166 40	2	2	4
16	54 35	166 24	1	8	9
18	54 19	166 14	1	2	3
Total	.....	.....	163	381	544

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER JAS. G. SWAN (NORTHWEST COAST), PETER BROWN, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Feb. 2	48 00	126 00	9	6	15
3	48 07	125 58	22	12	34
7	48 12	126 03	3	4	7
8	48 09	126 05	10	17	27
Mar. 5	48 05	125 15	3	2	5
6	47 50	125 20	.....	1	1
7	47 40	125 19	3	5	8
8	47 45	125 21	5	6	11
Apr. 21	47 49	125 23	10	13	23
22	47 50	125 20	.....	2	2
24	47 40	125 22	1	1	2
25	47 42	125 23	3	2	5
26	47 50	125 30	14	7	21
27	47 51	125 21	3	5	8
29	47 44	125 05	14	41	55
Total	.....	.....	100	124	a 224

a Shot 30, speared 194.

Customs examination, 156 females and 68 males.

AMERICAN SCHOONER JAS. G. SWAN (BERING SEA), J. W. TODD, MASTER.

1895.	N.	W.			
Aug. 1	54 22	166 59	7	3	10
2	54 38	167 43	3	5	8
3	54 42	167 38	8	7	15
4	54 44	166 55	12	10	22
8	55 24	171 42	.....	1	1
9	55 10	171 02	3	8	11
10	55 20	170 11	10	81	91
11	54 52	170 15	9	64	73
12	54 48	170 22	4	5	9
14	55 18	170 30	8	68	76
15	55 18	170 17	7	57	64
17	55 22	170 09	16	73	89
19	55 07	169 53	.....	1	1
20	55 30	169 58	16	82	98
21	55 22	170 08	11	55	66
22	55 22	170 06	12	68	80
26	55 08	170 40	8	52	60
27	55 04	170 45	25	55	80
28	55 14	170 40	7	23	30
31	55 22	169 48	3	4	7
Sept. 1	55 24	169 54	31	121	152
2	55 24	170 25	8	13	21
10	55 24	170 20	4	16	20
Total	.....	.....	212	872	1,084

AMERICAN SCHOONER STELLA ERLAND (NORTHWEST COAST), H. K. NEWGARD, MASTER.

1895.	N.	W.			
Feb. 7	48 16	125 36	3	6	9
8	47 51	125 18	5	1	6
9	48 03	125 29	10	6	16
Mar. 4	47 46	125 10	1	.....	1
5	47 46	125 50	4	.....	4
6	47 45	125 25	2	1	3
7	47 57	125 02	2	.....	2
8	47 45	125 35	7	8	15
9	47 34	125 50	3	.....	3
21	48 01	126 00	4	6	10
24	47 47	125 05	.....	2	2
25	47 32	125 45	1	2	3
26	47 33	125 30	15	18	33
27	47 45	125 30	7	5	12
28	47 42	125 25	.....	1	1
29	48 00	125 14	19	26	45
Total	.....	.....	83	82	a 165

a Shot 2, speared 163.

Customs examination, 130 females and 35 males.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER STELLA ERLAND (BERING SEA), B. B. WHITNEY, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Aug. 1	54 28	166 19	29	43	72
2	54 32	166 34	1	6	7
3	54 29	166 29	1	2	3
4	54 17	167 55	5	.....	5
5	54 12	168 33	1	.....	1
8	54 03	168 03	.....	1	1
9	54 56	168 03	1	3	4
10	54 56	168 05	13	44	57
11	54 37	167 30	16	47	63
12	54 21	167 11	20	17	37
15	55 04	166 54	5	57	62
17	54 56	167 27	12	19	31
19	55 14	167 32	5	18	23
20	55 10	167 51	9	26	35
21	55 03	168 14	8	12	20
22	55 12	167 26	.....	12	12
23	54 26	166 17	7	16	23
24	54 33	167 17	12	23	35
27	54 38	165 46	8	15	23
28	54 41	165 56	18	47	65
Sept. 2	55 00	168 37	1	.....	1
7	55 13	172 60	3	4	7
9	55 49	172 23	6	28	34
10	55 50	172 15	2	4	6
15	55 05	167 02	.....	3	3
16	55 56	165 34	.....	2	2
20	54 31	165 32	20	24	44
Total	.....	.....	203	473	676

AMERICAN SCHOONER PURITAN (NORTHWEST COAST), IDIS WOODWARD, MASTER.

Date.	Males.	Females.	Total.
Between March 8 and March 25, 1895	2	2	4
Between March 25 and April 30, 1895	2	4	6
Total	4	6	*a* 10

a Speared.

AMERICAN SCHOONER TEASER (NORTHWEST COAST), MAC OLESON, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Mar. 5	48 08	125 42	6	8	14
6	47 45	125 18	1	2	3
7	47 10	125 58	.....	2	2
8	47 56	126 18	3	2	5
9	47 56	126 25	.....	1	1
Apr. 8	48 05	126 26	5	4	9
21	47 44	125 12	6	8	14
22	47 49	126 26	4	3	7
26	47 43	125 34	8	6	14
27	47 43	125 24	8	10	18
Total	.....	.....	41	46	*a* 87

a Shot 2, speared 85.

Customs examination, 64 females and 23 males.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 189
Continued.

AMERICAN SCHOONER AUGUST (NORTHWEST COAST), CHARLES WEIBERHAR
MASTER.

Date.	Males.	Females.	Tot
Between March 8 and March 25, 1895	2	4	

a Speared.

AMERICAN SCHOONER MATILDA (NORTHWEST COAST), JAMES YOKUM, MASTE

Date.	Latitude.	Longitude.	Males.	Females.	Tot
1895.	N.	W.			
Jan. 29	48 06	125 32	.....	4	
Feb. 9	48 01	125 26	1	.....	
Mar. 5	47 53	125 40	.....	1	
8	47 40	125 54	1	.....	
9	47 42	125 43	1	.....	
Apr. 21	48 00	127 00	1	5	
22	47 00	135 26	.....	1	
24	47 40	127 43	1	2	
26	48 00	126 00	8	7	
27	48 06	125 32	.....	2	
Total	.....	.....	13	22	

a Shot 3, speared 32.

Customs examination, 30 females and 5 males.

AMERICAN SCHOONER C. C. PERKINS (NORTHWEST COAST), TOKASKO, OR LIG
HOUSE JIM, MASTER.

Date.	Males.	Females.	Tot
Between February 28 and March 25, 1895	5	17	
March 25 to April 30, 1895	3	9	
Total	8	26	

a Speared.

AMERICAN SCHOONER ELSIE (NORTHWEST COAST), N. T. OLLIVER, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Tot
1895.	N.	W.			
Feb. 8	48 07	125 28	11	4	
9	47 50	125 30	26	11	
13	48 02	125 33	3	.....	
22	48 03	124 50	1	.....	
23	47 51	125 12	2	2	
24	47 45	125 00	11	5	
Mar. 3	47 55	125 04	4	4	
4	48 01	125 05	3	1	
5	47 53	125 32	2	3	
6	47 28	124 50	.....	2	
9	47 56	124 55	.....	2	
10	47 50	125 25	1	1	
31	48 00	125 03	1	.....	
Apr. 4	47 50	125 12	4	11	
8	47 50	125 12	3	5	
20	48 02	125 00	4	6	
21	47 40	125 12	1	26	
22	47 56	124 52	.....	6	
24	47 50	125 12	1	4	
26	47 48	125 15	2	11	
27	47 57	125 12	1	3	
29	48 20	125 45	3	18	
Total	.....	.....	84	125	*a*

a Shot 204, speared 5.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER BERING SEA (NORTHWEST COAST), L. LARSEN, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Mar. 4	48 30	125 19	1	3	4
5	47 28	125 00	3	5	8
6	47 39	125 10	.....	2	2
7	47 50	125 30	1	1	2
9	48 09	127 00	8	19	27
10	48 05	127 10	.....	2	2
Apr. 19	48 46	126 30	4	5	9
20	48 30	126 40	7	11	18
21	48 30	126 30	12	21	33
22	48 20	126 15	1	.....	1
27	48 07	126 30	21	12	33
28	48 10	126 20	2	2	4
29	48 15	126 15	16	21	37
Total	.....	.....	76	104	a 180

a Shot 8, speared 172.

Customs examination, 145 females and 35 males.

AMERICAN SCHOONER BERING SEA (BERING SEA), L. LARSEN, MASTER.

1895.	N.	W.			
Aug. 1	54 35	166 50	18	41	59
2	54 52	166 51	2	18	20
3	54 54	167 10	.....	1	1
4	55 03	166 54	.....	7	7
6	54 55	166 57	1	.....	1
8	54 57	166 03	.....	1	1
9	54 49	167 10	1	3	4
10	54 50	167 23	10	31	41
11	54 40	166 45	32	105	137
12	54 42	166 17	.....	2	2
15	54 34	166 09	17	53	70
20	54 30	166 40	7	16	23
21	54 19	167 04	6	4	10
22	54 40	166 44	4	7	11
23	54 40	166 24	.....	10	10
24	54 48	165 35	6	27	33
26	54 38	167 56	4	6	10
27	54 24	167 15	10	23	33
28	54 18	167 15	4	8	12
31	54 35	166 25	4	12	16
Sept. 1	55 00	166 30	7	19	26
2	55 24	166 24	.....	8	8
3	55 21	167 30	.....	2	2
7	55 05	168 24	9	23	32
8	55 20	169 30	6	19	25
9	55 10	169 46	.....	1	1
10	55 15	169 50	8	20	28
13	54 51	168 08	.....	1	1
15	54 50	167 00	1	15	16
16	54 34	166 30	5	10	15
21	54 25	166 00	3	5	8
Total	.....	.....	165	498	663

AMERICAN SCHOONER DEEAHKS (NORTHWEST COAST), JOHN JAMES, MASTER.

1895.	N.	W.			
Mar. 4	48 00	125 00	5	3	8
5	47 56	125 12	4	8	12
6	47 38	125 05	3	5	8
7	47 24	125 16	4	5	9
8	47 19	125 08	3	6	9
Apr. 21	(a)	(a)	8	10	18
23	(a)	(a)	2	.....	2
	(a)	(a)	10	6	16
Total	.....	.....	39	43	b 82

a No position for these days. b Shot 9, speared 73.

Customs examination, 62 females and 20 males.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER DEEAHKS (BERING SEA), BEN MARTINIUS, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Aug. 1	54 22	166 58	6	5	11
2	54 18	168 15	4	4	8
4	54 32	167 45	2	3	5
5	54 30	167 51	3	12	15
7	54 50	165 55	.....	1	1
8	55 04	166 01	1	.....	1
9	54 56	165 55	6	17	23
10	54 48	166 00	11	60	71
11	54 52	166 09	15	46	61
12	54 50	165 45	5	13	18
14	55 20	168 18	8	39	47
15	55 14	168 08	13	49	62
17	55 14	168 28	2	19	21
18	55 15	168 39	1	4	5
20	54 20	167 03	8	35	43
21	54 18	166 49	3	10	13
27	55 02	166 46	2	19	21
28	54 52	166 20	15	33	48
30	54 35	166 40	2	1	3
31	54 28	167 34	6	16	22
Sept. 1	54 25	167 26	10	15	25
2	54 50	167 40	1	8	9
7	55 25	167 10	8	20	28
8	55 30	167 38	6	8	14
9	54 55	167 00	.....	3	3
10	55 05	166 52	2	9	11
11	55 25	166 10	.....	1	1
15	54 50	165 32	1	1	2
Total	.....	.....	141	451	592

AMERICAN SCHOONER EMMETT FELITZ (NORTHWEST COAST), JAMES CLAPLANHOZ, MASTER.

Date.	Males.	Females.	Total.	Date.	Males.	Females.	Total.
1895.				1895.			
Mar. 4	3	.....	3	Apr. 22	.....	1	1
5	.....	3	3	25	1	1	2
6	1	5	6	26	1	1	2
7	.....	3	3	27	.....	7	7
8	.....	3	3				
Apr. 21	3	16	19	Total	9	40	a 49

a Shot 16, speared 33.

AMERICAN SCHOONER IDLER (NORTHWEST COAST), L. A. LONSDALE, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Jan. 28	47 25	125 00	1	1	2
Feb. 6	48 05	125 40	4	4	8
8	47 50	125 10	.....	1	1
9	47 50	125 10	.....	1	1
10	47 50	125 10	.....	2	2
Mar. 5	48 00	125 00	.....	1	1
Apr. 9	48 20	125 35	.....	3	3
21	48 00	125 50	1	3	4
23	48 00	125 30	.....	1	1
26	48 10	125 00	.....	9	9
27	48 20	125 00	.....	6	6
29	48 20	125 30	.....	3	3
Total	.....	.....	6	35	a 41

a Shot.

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER JESSIE (NORTHWEST COAST).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Apr. 10, 1895	48 09	125 04	2	22	a 24

a Shot 2, speared 22.

Customs examination, 24 females; 22 were pregnant when caught.

AMERICAN SCHOONER R. ECRETT (NORTHWEST COAST).

1895.	N.	W.			
Mar. 5	47 50	125 20	5	1	6
6	48 00	125 30	4	3	7
7	48 00	125 30	5	.....	5
8	47 30	125 20	4	.....	8
9	47 45	125 25	4	3	4
10	47 45	125 25	3	4	7
Apr. 14	47 50	125 40	1	.....	7
20	48 20	125 20	7	3	11
21	48 14	125 30	4	2	0
23	47 30	125 30	2	2	6
24	48 31	125 35	.....	2	4
27	47 30	125 30	9	7	12
28	48 25	125 00	4	2	6
29	48 20	125 00	13	5	16
Total	.....	.....	65	34	a 99

a Shot 50, speared 49.

Customs examination, 90 females and 9 males.

AMERICAN SCHOONER GEO. W. PRESCOTT (BERING SEA), HENRY McALMOND, MASTER.

1895.	N.	W.			
Aug. 1	54 40	168 10	17	15	32
2	54 30	163 00	16	5	21
10	54 34	166 00	7	5	12
11	54 27	166 30	16	23	39
12	54 24	166 40	4	4	8
15	54 30	166 49	14	6	20
17	54 40	168 25	3	14	17
18	54 45	168 20	2	5	7
19	54 40	168 24	.....	13	13
20	54 50	168 35	.....	15	15
21	55 30	168 01	.....	6	6
22	54 30	168 20	4	.....	4
24	55 17	167 40	.....	1	1
27	54 35	165 25	5	6	11
28	54 34	165 30	10	17	27
30	54 48	165 30	.....	1	1
31	54 45	165 35	37	23	60
Sept. 1	54 40	165 40	.....	8	8
2	54 38	165 45	.....	3	3
3	54 35	165 50	.....	2	2
8	55 00	167 40	4	10	14
9	55 15	167 40	.....	5	5
10	55 15	167 40	.....	1	1
12	55 05	166 15	2	.....	2
Total	.....	.....	141	188	329

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER ALLIE I. ALGAR (BERING SEA), H. B. JONES, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Aug. 4	55 27	166 46	1	7	8
5	55 42	167 07	1	3	4
11	55 36	167 11	4	52	56
12	55 17	167 13	1	.....	1
15	55 01	167 24	5	34	39
17	55 40	167 23	.....	2	2
20	55 17	166 50	2	27	29
21	55 02	167 20	1	13	14
24	55 44	167 24	.....	1	1
25	55 12	168 54	.....	1	1
26	55 20	169 13	2	10	12
27	54 56	169 20	2	10	12
28	54 31	169 32	1	6	7
Sept. 3	56 41	167 06	.....	7	7
Total	.....	.....	20	173	193

AMERICAN SCHOONER WILLARD AINSWORTH (BERING SEA), E. R. CROCKETT, MASTER.

1895.	N.	W.			
Aug. 2	54 49	166 30	1	.....	1
4	55 10	168 29	6	12	18
9	55 08	168 14	.....	2	2
10	55 16	168 25	5	15	20
11	55 10	168 25	12	51	63
12	55 00	167 20	4	19	23
14	55 06	168 40	2	4	6
15	55 20	168 46	15	32	47
17	55 21	168 32	7	36	43
19	55 09	168 35	2	5	7
20	55 18	169 10	18	38	56
21	55 32	168 53	20	38	58
22	55 60	169 57	1	20	21
24	54 57	169 57	7	11	18
27	54 55	168 00	6	9	15
28	54 36	167 30	4	9	13
Sept. 1	55 00	171 35	7	19	26
8	54 39	167 13	.....	2	2
9	54 40	166 00	.....	1	1
Total	.....	.....	117	323	440

AMERICAN SCHOONER M. M. MORRILL (BERING SEA), EDWARD CANTILLION, MASTER.

1895.	N.	W.			
Aug. 1	54 27	166 50	10	5	15
4	54 51	169 44	5	15	20
5	55 05	170 20	4	7	11
9	55 16	170 30	.....	1	1
10	55 10	170 12	4	30	34
11	55 12	170 25	7	37	44
12	55 12	170 18	4	14	18
14	55 12	169 47	6	10	16
15	54 58	169 25	7	24	31
17	55 20	169 28	5	16	21
20	55 10	169 46	13	46	59
21	55 13	169 47	.....	7	7
22	55 07	169 24	4	13	17
24	55 17	169 27	.....	1	1
26	54 53	169 45	1	2	3
27	55 00	170 00	11	24	35
28	55 10	170 09	1	6	7
Sept. 1	54 50	167 15	10	6	16
2	54 40	167 20	1	1	2
7	55 18	167 12	2	9	11
8	54 00	167 00	2	11	13
9	54 33	166 50	1	4	5
10	54 27	166 50	4	2	6
Total	.....	.....	102	291	393

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER KATE AND ANNA (NORTHWEST COAST), CHARLES LUTZENS, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.					
Jan. 15				1	1
25	18 miles SW	Point Reyes		6	6
26	38 00 N	123 36 W		2	2
28	37 09 N	123 10 W		3	3
29	37 04 N	122 55 W		4	4
31	15 miles SW	S. Farallon		4	4
Feb. 1	15 miles SW	Point Reyes		5	5
3	38 17 N	123 33 W		5	5
4	38 16 N	123 25 W		13	13
5	38 14 N	123 15 W	2		2
14			1	15	16
15	38 06	123 24 W		3	3
16	38 00	123 20 W	3	10	13
19	15 miles SW	Point Reyes		5	5
20	22 miles SW	do		8	8
21	20 miles	do		8	8
23	38 42 N	123 50 W		1	1
27	38 25 N	123 45 W		2	2
Mar. 1				5	5
2	20 miles NE. by E	Point Reyes		8	8
3	20 miles NE. by E	do		2	2
4	25 miles ESE	do		7	7
5	20 miles E. by S	do	1	19	20
6	18 miles ESE	do		2	2
7	16 miles E. by S	do	4	14	18
15	37 34 N	123 50 W		2	2
18			8	20	28
22	38 00 N	123 40 W		3	3
23	38 08 N	123 25 W		2	2
24	30 miles ENE	Point Reyes	1	11	12
25	38 16 N	123 47 W		6	6
30	42 00 N	124 25 W		8	8
Apr. 6	44 04 N	124 30 W	1	9	10
7	44 01 N	124 25 W		7	7
18	47 12 N	125 08 W	5	14	19
19	47 20 N	125 05 W	5	24	29
20	47 27 N	125 15 W	1	29	30
21	47 21 N	125 09 W	4	10	14
25	47 25 N	129 05 W		1	1
26	47 27 N	125 25 W	4	11	15
27	47 45 N	125 10 W		5	5
28	47 24 N	124 30 W		3	3
29	18 miles NE. by E	Cape Disappointment	3	30	33
	Total		43	347	a 390

a Shot.

Miscellaneous data showing positions where fur seals were taken by Canadian and American vessels in the North Pacific Ocean and Bering Sea in 1895.

[Data collected by C. H. Townsend and A. B. Alexander.]

CANADIAN SCHOONER VICTORIA (NORTHWEST COAST AND BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Mar. 1	48 10	125 30	4	4	8
3	48 00	125 40	4	6	10
4	48 20	125 50	6	8	14
5	47 50	125 10	3	10	13
6	47 45	125 20	2	6	8
7	48 00	126 30	2	8	10
8	48 30	126 30		5	5
16	49 00	127 49		8	8
Apr. 9	58 10	139 00	6	3	9
10			4	1	5
12	58 25	139 40	4		4
16	58 30	140 08	5	3	8
17	58 30	140 08	21	10	31
19	58 44	140 00	1	3	4

Positions where fur seals were taken in the North Pacific Ocean and Bering Sea in 18[illegible]
Continued.

AMERICAN SCHOONER ALLIE I. ALGAR (BERING SEA), H. B. JONES, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total
1895.	N.	W.			
Aug. 4	55 27	166 46	1	7	8
5	55 42	167 07	1	3	4
11	55 36	167 11	4	52	56
12	55 17	167 13	1	.....	1
15	55 01	167 24	5	34	39
17	55 40	167 23	.....	2	2
20	55 17	166 50	2	27	29
21	55 02	167 20	1	13	14
24	55 44	167 34	.....	1	1
25	55 12	168 54	.....	1	1
26	55 20	169 13	2	10	12
27	54 56	169 20	2	10	12
28	54 31	169 32	1	6	7
Sept. 3	56 41	167 06	.....	7	7
Total	.....	.....	20	173	193

AMERICAN SCHOONER WILLARD AINSWORTH (BERING SEA), E. E. CROCKETT, MASTER.

1895.	N.	W.			
Aug. 2	54 49	166 30	1	.....	1
4	55 10	168 29	6	12	18
9	55 08	168 14	.....	2	2
10	55 16	168 25	5	15	20
11	55 10	168 26	12	51	63
12	55 00	167 20	4	19	23
14	55 06	168 40	2	4	6
15	55 20	168 46	15	32	47
17	55 21	168 32	7	36	43
19	55 09	168 35	2	5	7
20	55 18	169 10	18	38	56
21	55 32	168 53	20	38	58
22	55 00	169 57	1	20	21
24	54 57	169 57	7	11	18
27	54 55	168 00	6	9	15
28	54 36	167 30	4	9	13
Sept. 1	55 00	171 35	7	19	26
8	54 39	167 13	.....	2	2
9	54 40	166 00	.....	1	1
Total	.....	.....	117	323	440

AMERICAN SCHOONER M. M. MORRILL (BERING SEA), EDWARD CANTILLION, MASTER.

1895.	N.	W.			
Aug. 1	54 27	166 50	10	5	15
4	54 51	169 44	5	15	20
5	55 05	170 20	4	7	11
9	55 16	170 30	.....	1	1
10	55 10	170 12	4	30	34
11	55 12	170 25	7	37	44
12	55 12	170 18	4	14	18
14	55 12	169 47	6	10	16
15	54 58	169 25	7	24	31
17	55 20	169 28	5	16	21
20	55 10	169 46	13	46	59
21	55 13	169 47	.....	7	7
22	55 07	169 24	4	13	17
24	55 17	169 27	.....	1	1
26	54 53	169 45	1	2	3
27	55 00	170 00	11	24	35
28	55 10	170 09	1	6	7
Sept. 1	54 50	167 15	10	6	16
2	54 40	167 20	1	1	2
7	55 18	167 12	2	9	11
8	54 00	167 00	2	11	13
9	54 33	166 50	1	4	5
10	54 27	166 50	4	2	6
Total	.....	.....	102	291	393

itions where fur seals were taken in the North Pacific Ocean and Bering Sea in 1895—Continued.

ERICAN SCHOONER KATE AND ANNA (NORTHWEST COAST), CHARLES LUTZENS, MASTER.

ate.	Latitude.	Longitude.	Males.	Females.	Total.
195.					
. 15				1	1
25	18 miles SW	Point Reyes		6	6
26	38 00 N	123 36 W		2	2
28	37 09 N	123 10 W		3	3
29	37 04 N	122 55 W		4	4
31	15 miles SW	S. Farallon		4	4
. 1	15 miles SW	Point Reyes		5	5
3	38 17 N	123 33 W		5	5
4	38 16 N	123 25 W		13	13
5	38 14 N	123 15 W	2		2
14			1	15	16
15	38 06	123 24 W		3	3
16	38 00	123 20 W	3	10	13
19	15 miles SW	Point Reyes		5	5
20	22 miles SW	do		8	8
21	20 miles	do		8	8
23	38 42 N	123 50 W		1	1
27	38 25 N	123 45 W		2	2
r. 1				5	5
2	20 miles NE. by E	Point Reyes		8	8
3	20 miles NE. by E	do		2	2
4	25 miles ESE	do		7	7
5	20 miles E. by S	do	1	19	20
6	18 miles ESE	do		2	2
7	16 miles E. by S	do	4	14	18
15	37 34 N	123 50 W		2	2
18			8	20	28
22	38 00 N	123 40 W		3	3
23	38 08 N	123 25 W		2	2
24	30 miles ENE	Point Reyes	1	11	12
25	38 16 N	123 47 W		6	6
30	42 00 N	124 25 W		8	8
r. 6	44 04 N	124 30 W	1	9	10
7	44 01 N	124 25 W		7	7
18	47 12 N	125 08 W	5	14	19
19	47 20 N	125 05 W	5	24	29
20	47 27 N	125 15 W	1	29	30
21	47 21 N	125 00 W	4	10	14
25	47 25 N	129 05 W		1	1
26	47 27 N	125 25 W	4	11	15
27	47 45 N	125 10 W		5	5
28	47 24 N	124 30 W		3	3
29	18 miles NE. by E	Cape Disappointment	3	30	33
	Total		43	347	a 390

a Shot.

scellaneous data showing positions where fur seals were taken by Canadian and American vessels in the North Pacific Ocean and Bering Sea in 1895.

[Data collected by C. H. Townsend and A. B. Alexander.]

CANADIAN SCHOONER VICTORIA (NORTHWEST COAST AND BERING SEA).

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
r. 1	48 10	125 30	4	4	8
3	48 00	125 40	4	6	10
4	48 20	125 50	6	8	14
5	47 50	125 10	3	10	13
6	47 45	125 20	2	6	8
7	48 00	126 30	2	8	10
8	48 30	126 30		5	5
16	49 00	127 49		8	8
r. 9	58 10	139 00	6	3	9
10			4	1	5
12	58 25	139 40	4		4
16	58 30	140 08	5	3	8
17	58 30	140 08	21	10	31
19	58 44	140 00	1	3	4

Miscellaneous data showing positions where fur seals were taken by Canadian and American vessels in North Pacific Ocean and Bering Sea in 1895—Continued.

CANADIAN SCHOONER DORA SIEWERD (NORTHWEST COAST), H. F. SIEWERD, MASTER—Continued.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Apr. 1	55 27	135 00	2	2	4
3	55 27	135 00	1	1	2
9	58 46	140 00	13	4	17
10	58 35	140 45	10	.....	10
12	58 46	139 43	11	4	15
17	58 31	142 15	6	.....	6
18	58 00	142 00	9	5	14
19	58 14	141 12	3	.....	3
23	58 42	140 20	14	4	18
24	58 43	140 39	4	1	5
25	58 23	140 30	3	2	5
28	56 05	135 39	12	4	16
Total	.....	.....	287	216	503

CANADIAN SCHOONER WALTER L. RICH (NORTHWEST COAST), BALCOM, MASTER.

1895.	N.	W.			
Mar. 13	48 58	128 35	5	2	7
25	58 08	138 36	12	12	24
28	57 29	138 40	6	2	8
Apr. 1	57 20	140 00	10	9	19
9	58 20	140 00	6	6	12
10	58 24	140 00	8	11	19
19	58 41	140 07	12	10	22
23	59 03	140 50	20	7	27
28	55 35	135 20	4	3	7
Total	.....	.....	83	62	145

AMERICAN SCHOONER IDA ETTA (COASTS OF JAPAN AND RUSSIA), HUGHES, MASTER.

Date.	Latitude.	Longitude.	Seals.	Date.	Latitude.	Longitude.	Seals.
1895.	N.	E.		1895.	N.	E.	
Mar. 25	36 15	142 25	2	May 12	Off Cape Yerimo, ENE. 20 miles.		16
30	.....	.....	7	16	40 03	146 02	22
Apr. 1	36 32	144 47	11	20	39 57	146 25	35
2	.....	.....	1	23	40 20	145 44	15
3	15 miles off shore.		2	24	40 12	146 30	33
4	.....	.....	2	25	39 57	145 55	29
5	.....	.....	6	27	40 03	146 19	5
6	.....	.....	14	30	39 50	145 55	4
7	39 41	144 11	.....	June 2	39 55	145 46	21
12	39 48	143 56	21	3	39 15	146 00	1
18	40 06	146 07	5	5	39 30	146 10	11
19	.....	.....	24	6	39 38	146 29	31
22	39 06	146 49	2	7	39 36	146 26	9
23	39 42	146 27	16	Aug. 20	Cape Nagikinski, SW. 30 miles.		37
28	39 44	145 58	34	21	Cape Nagikinski, SW. 20 miles.		35
May 1	40 30	145 55	37	24	do		28
3	41 45	144 00	1	26	do		28
4	Off Cape Yerimo, NW. 15 miles.		8	27	Cape Nagikinski, W. 30 miles.		10
5	Off Cape Yerimo, NNE. 10 miles.		17	31	do		3
6	Off Cape Yerimo, N. 20 miles.		32	Sept. 1	Cape Nagikinski, WSW. 25 miles.		25
7	Off Cape Yerimo, WNW. 15 miles.		24	2	Cape Nagikinski, SW. 20 miles.		6
8	Off Cape Yerimo, WNW. 8 miles.		25	3	Cape Nagikinski, SW. 30 miles.		4
9	Off Cape Yerimo, E. by N. 20 miles.		16	4	Cape Nagikinski, SW. 25 miles.		4
10	Off Cape Yerimo, E. 25 miles.		20				

*ous data showing positions where fur seals were taken by Canadian and Ameri-
vessels in the North Pacific Ocean and Bering Sea in 1895*—Continued.

RICAN SCHOONER ALLIE J. ALGAR (JAPAN COAST), JONES, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	E.			
	36 24	141 39	6	5	11
	37 00	141 00	1	.....	1
	36 39	142 12	50	17	67
	36 24	141 50	12	4	16
	36 33	142 18	10	5	15
	37 00	142 35	8	3	11
	37 09	142 26	1	3	4
	37 47	142 14	2	.....	2
	37 22	141 41	20	8	28
	37 26	142 18	5	7	12
	38 57	142 25	12	8	20
	39 14	142 48	14	4	18
	37 35	142 25	5	1	6
	37 50	141 58	.....	1	1
	38 07	146 32	1	.....	1
	37 59	145 50	18	7	25
	37 22	145 50	12	7	19
	37 35	147 07	5	2	7
	39 05	146 15	1	4	5
	39 14	146 35	49	19	68
	39 37	146 23	32	22	54
	39 35	146 07	31	22	53
	39 44	145 45	29	15	44
	41 54	144 30	4	2	6
	41 49	143 55	3	1	4
	41 28	142 56	39	13	52
	41 29	142 28	51	11	62
	41 21	142 00	2	4	6
	42 00	141 49	2	.....	2
	41 45	142 40	6	3	9
	41 43	142 48	1	.....	1
	42 00	142 52	5	4	9
	41 57	142 49	37	15	52
	42 10	142 40	15	11	26
	41 39	142 50	19	11	30
	43 12	146 39	9	3	12
	42 23	146 40	39	9	48
	43 27	146 36	37	7	44
	43 24	146 21	3	1	4
	43 28	146 40	5	1	6
	43 00	146 59	3	1	4
	43 37	147 00	1	.....	1
	43 50	147 11	9	5	14
	43 53	147 14	23	3	26
	44 00	147 20	6	3	9
	44 17	147 40	19	17	36
	44 50	143 47	.....	2	2
	45 14	149 00	4	1	5
	45 00	148 55	4	3	7
	44 05	148 40	9	4	13
	44 40	147 45	20	3	23
	49 09	157 13	1	.....	1
	43 35	156 25	1	.....	1
al	.....	.....	701	302	1,003

9

iscellaneous data showing positions where fur seals were taken by Canadian and American vessels in the North Pacific Ocean and Bering Sea in 1895—Continued.

AMERICAN SCHOONER RATTLER (BERING SEA), NEILSEN, MASTER.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
.ug. 1	54 57	167 45	10	21	31
2	54 52	167 32	3	7	10
4	55 09	169 37	3	7	10

CANADIAN SCHOONER MAUD S. (BERING SEA), McKIEL, MASTER.

1895.	N.	W.			
ug. 1	54 57	169 35	89	46	135
2	54 52	169 14	53	22	75
3	54 32	169 18	2	.....	2
4	54 46	169 35	32	21	53
7	55 13	169 01	1	.....	1
8	54 51	168 51	.....	1	1
9	54 48	169 39	10	16	26
10	55 58	169 21	35	88	123
11	54 57	169 20	64	95	159
12	54 43	168 55	23	12	35
Total	.....	.....	309	301	610

'UR SEALS OBSERVED BY THE AMERICAN WHALER OLGA (NORTH PACIFIC OCEAN), KNOWLES, MASTER.

Date.	Latitude.	Longitude.
1895.	N.	W.
.pr. 16	48 14	162 30
17	50 13	160 21
18	51 38	159 20
19	53 05	158 07
20	54 45	157 00

FROM A REPORT ON THE FUR-SEAL ROOKERIES OF THE PRIBILOF ISLANDS, 1895.

By F. W. True.

LETTER OF TRANSMITTAL.

U. S. Commission of Fish and Fisheries,
Office of the Commissioner,
Washington, February 4, 1896.

Sir: I have the honor to transmit herewith certain "extracts from a report relative to the natural history of the fur seals and the condition of the rookeries on the Pribilof Islands, Alaska, based upon observations made during the season of 1895 by F. W. True, curator of mammals, United States National Museum."

You will recall that Mr. True spent the summer of 1895 in making a study of the seal rookeries of the Pribilof Islands independently of Mr. C. H. Townsend. His final report, which will be taken up largely with a discussion of the natural history of the fur seal, will not be completed for some time, but in the preliminary account of his inquiries he covers fully all the main points of direct interest in connection with the present sealing controversy, so far as that subject came within the range of his observations. It is that part of his report which is now forwarded.

Very respectfully, Herbert A. Gill,
Acting Commissioner.

The Secretary of the Treasury,
Washington, D. C.

DEAD PUPS.

The matter of dead pups is one which I can only discuss briefly, as the terrible mortality reported in recent years occurs late in the season, after the date on which my observations closed.

I saw a number of dead pups during my sojourn, but do not think that the total would exceed 150 for all the St. Paul rookeries. The largest number were at the north end of Tolstoi rookery, where I observed 70 in one small area and about 25 more a little farther south, on the 15th of August. The area referred to was occupied earlier in the season by a great mass of seals, and I regard the number of dead pups found here as representing the ordinary mortality of the young. These pups were

not in the water or at the water's edge or in positions where they could be supposed to have been cast up by storms.

On August 2 I counted 23 dead pups on Ketavie rookery. These were all on the higher parts of the rookery, and there were none at the water's edge. A few dead pups were found on the highest parts of several of the rookeries, and these, as Mr. Townsend suggested, were such as had been worried to death by the bachelors which hang about the rear of the rookeries. On several occasions I saw young bachelor seals snatch pups away from the pods on the higher parts of the rookeries, and badger them about as if they had been cows.

On Ketavie rookery, on July 27, I saw a youngish bull at the back of the rookery seize a pup out of one of the upper pods with his teeth and carry it up the hillside. He dropped it several times, but picked it up again. The pup presently bit at his assailant, and when the attention of the latter was distracted, ran away down the hill again. Another pup, apparently brought up the slope by this same bull, had crawled in under a rock, so that it could not be reached.

On August 5, on Ketavie, I saw a bachelor attempting to copulate with one of these pups. The instinct of reproduction seems to spring up at an early age in the seals, and hence these unnatural assaults on the pups. I agree with Mr. Townsend in thinking that a portion, at least, of the dead pups found high up on the rookeries are such as have been worried to death in the manner indicated. Some of these pups, however, are doubtless such as have wandered away from their mothers, beyond the confines of the rookery, and have died of starvation.

ESTIMATES OF NUMBER OF SEALS.

When Mr. Townsend arrived on St. Paul in July we endeavored to obtain data for an estimate of the number of seals present. With this in view we went to Ketavie, Lukannon, Tolstoi, and the Lagoon rookeries and made an actual count as far as the conditions would permit. As we proceeded it soon became apparent that to count all of the several classes of seals was impracticable. The first difficulty that we encountered lay in the fact that the roughness of the ground prevented us from seeing some of the harems distinctly, and we were unable to go down among the seals without stampeding them. Later we came upon the triangles or wedges of breeding seals massed as close together as it was possible for them to lie. It was necessary to use a field glass in investigating these groups, and as there were no salient points which could be picked out, as the count proceeded the eye soon became confused and the count lost. The larger groups of pups presented the same difficulty. This class was omitted later on, because on areas which had to be viewed from a distance so large a proportion of pups were concealed by the bowlders that the count could not be at all relied upon. We came eventually to count only the cows. At the Lagoon we counted by passing in front of the rookery in a boat, using a low-power glass. The harems were separated here by considerable intervals, and as the whole rookery was in plain view there was no obstacle to counting.

On Ketavie we counted without a glass for the most part, going down among the seals as best we could, and the same course was pursued at Lukannon and Tolstoi.

It can not be claimed that our count is mathematically accurate, but I believe that a sufficiently large area was covered to render the inaccuracy of comparatively little consequence. An actual census could be made only by driving all the seals inland and passing them in

review, or photographing the rookeries from overhead, both of which proceedings are impracticable.

The enumeration of cows on the Lagoon, made July 10, was by harems, as follows:

[The numbers indicate breeding females in each harem.]

8	7	28	20	15	20	67	1	1	16	8
1	10	1	9	16	8	18	4	20	31	2
41	14	7	1	22	4	1	16	2	41	1
16	3	23	38	1	2	10	18	6	3	25
16	3	4	32	31	4	25	2	19	1	26
24	2	37	20	4	6	9	48	14	19	16
4	21	15	12	35	7	12	23	16	39	4
26	4	67	24	5						

Total, 1,264.

The enumeration of cows on Ketavie, made July 8 to 10, beginning at the south, was as follows:

[The numbers indicate breeding females in each harem.]

1	21	1	47	29	1	38	12	15	22
1	9	145 (3)	1	9	17	16	1	9	19
12	23	10	2	13	4	2	50	1	24
3	12	9	2	29	4	10	8	1	18
3	9	93 (?)	52	64	5	11	10	25	21
4	4	12	10	1	1	5	24	35	36
35	1	20	29 (3)	12	40	11	17	15	28
10	28 (4)	1	9	5	9	1	5	19	8
28	13	60	11	45 (3)	14	2	7	75	34
8	6	21	13	8	14	10	1	10	52
25	2	2	2	15	20 (2)	13	30	42	43
34	5	14	14	30	19	47 (4)	23	49	13
3	22	15	0	7	4	10	12	16	8
55	89	32	60 (3)	18	1	9	17		

Total, 2,640.

NOTE.—The figures in parentheses refer to the number of bulls with the group of cows. In these cases several harems were of course consolidated.

Mr. Townsend made an enumeration of a portion of Lukannon rookery on July 12, and found 1,940 cows. The portion of this rookery on which he made no enumeration is sixteen one-hundredths of the total area of Ketavie and Lukannon, and it is necessary, therefore, to add 732 cows in making up the total for the two rookeries, which will then be 5,312 cows.

On July 11 I counted the cows on that portion of Tolstoi rookery under the cliffs at the south end, as follows:

[The numbers indicate breeding females in each harem.]

10	7	32	62	4	19	11	22	33	27
7	3	5	20	10	9	11	7	2	3
8	9	2	4	26	15	19	21	27	25
25	13	10	46	3	51 (2)	8	17	8	21
43	41	14	43	13	6	14	8	2	23
6	61	60 (3)	34	9	6	3	18	2	16
18	31	11	14	3	12	13	4	17	3
2	44	13	20	9	41	15	13	5	3
20	10	1	7	7	11	6	10	7	5
24	8	1	16	9	4	29	1	27	13
11	14	9	11						

Total, 1,624.

This portion of Tolstoi rookery is only a small part of the whole area, and the enumeration is chiefly valuable as a basis for ascertaining the average size of harems and for forming an estimate for the whole area.

The area of the several rookeries on St. Paul in July of the present year, as indicated on the maps made by Mr. C. H. Townsend, is shown below. I have divided the total area in the case of each rookery into two parts, on one of which the seals are distributed about as on the parts counted as regards density, and on the other are massed together. The areas are as follows:

	Not massed.	Massed.
	Square feet.	*Square feet.*
Upper Zapadnie	168, 734	51, [illegible]
Lower Zapadnie	181, 725	4, [illegible]
Tolstoi	160, 580	[illegible]
Lagoon	82, 241	.....
Reef	330, 523	115, [illegible]
Ketavie and Lukannon	226, 302	.....
Little Polavina	29, 969	.....
Big Polavina	64, 748	16, [illegible]
Northeast Point	378, 240	[illegible]

Employing again Mr. Townsend's maps, I find that the 1,264 cows counted on the Lagoon rookery covered an area of 82,241 square feet, making the average occupied by each cow 65 square feet. The 4,110 cows counted on Ketavie and Lukannon rookeries covered 189,712 square feet, or 46 square feet for each cow.

On Tolstoi 1,520 cows occupied 44,699 square feet, or 29 square feet for each.

The average is as follows:

	Square feet.
Lagoon rookery	65
Ketavie and Lukannon rookeries	46
Tolstoi	29
Average	46

If we divide the number representing the total area of the rookeries on St. Paul by 46 we should find thereby the number of cows It happens, however, as already stated, that on certain portions of the rookeries the seals are massed together, and for these areas it has been decided to consider the average density as double that of the remaining parts, which would give us 23 square feet as the average area occupied by each cow.

The cows on the whole area of the Lagoon rookery having been counted, the number obtained by this enumeration will be included instead of an estimate, and the same course will be taken with Lukannon and Ketavie rookeries.

The result is as follows:

	Cows.
Lagoon rookery	1, 264
Ketavie and Lukannon rookeries	5, 312
Tolstoi, Reef, Little Polavina, Big Polavina, Northeast Point, Upper Zapadnie, and Lower Zapadnie rookeries	54, 860
Total	61, 436

On St. George, by the same method, we find the following:

Rookery.	Area.	Number of cows.
	Sq. feet.	
Zapadnie	128,171	2,786
Starry Arteel	64,329	1,898
North	128,868	2,800
Little East	24,254	527
East	67,884	1,476
Total	.....	8,987

The total for the two islands will be as follows:

	Cows.
St. Paul	61,436
St. George	8,987
Total	70,423

The number of breeding bulls, providing one for every 16 cows, as already determined, will be as follows:

	Bulls.
St. Paul	3,839
St. George	563
Total	4,402

ESTIMATE OF BACHELORS.

To count the bachelor seals on the hauling grounds is a much more difficult task than to count the breeding cows. The bachelors are much of the time in movement, going down to and returning from the water, fighting among themselves, etc. Furthermore, they lie pretty evenly distributed over the areas they occupy, rendering it extremely difficult to select a single point on which the eye can rest as the count proceeds. For these reasons a count of the bachelors is in most places practically impossible. But there are other difficulties as well. The bachelors at the water's edge and back of the rookeries are scattered and frequently in situations in which they can not be well seen. On the large hauling grounds the "drives" cause the number to rise and fall. Where there are a thousand to-day there will be only a hundred to-morrow. Under certain conditions of weather these young males resort to the land in great numbers, while under other conditions they remain in the water. All these disturbances and changes cause any direct count to be of little value.

The counting of the bachelors being deemed impracticable, it remains to consider whether an estimate of their number can be made. It is known by official count how many seals are killed during the season, and counts were also made by myself and by the assistant Treasury agent this year of the number rejected from the majority of the killings.

There is great confusion in the "pods" or little bands of seals when the killers attack them, and the seals rejected when once started often move off rapidly. Hence the enumeration of the rejected seals can not invariably be made with entire accuracy. Still, as I learned by recounting, the error is only slight, and not sufficient to affect the general result. We have then an exact count of the number killed and an approximately accurate account of those rejected. Upon ascertaining what relation the latter bears to the former we can determine

quite accurately how many seals are driven off the hauling grounds. The following table embodies these data for St. Paul Island:

Date.	Rookery.	Number killed.	Number rejected.	Percentage of rejected.	Total (estimated) of seals driven.
1895.				*Per cent.*	
June 20	Northeast Point	1,961	1,607	*a* 45	[illegible]
24	Reef	1,548	1,487	*a* 49	[illegible]
26	Halfway Point	575	575	50	[illegible]
July 1	English Bay	751	1,126	60	[illegible]
2	Zapadnie	861	1,405	*a* 62	[illegible]
3	Lukannon	364	647	64	[illegible]
9	Northeast Point	960	1,440	60	[illegible]
10	do	431	800	65	[illegible]
15	Reef	1,138	2,322	70	[illegible]
17	Halfway Point	324	793	71	[illegible]
19	Zapadnie	834	1,856	69	[illegible]
22	Northeast Point	827	2,236	73	[illegible]
27	Lukannon	286	931	76.5	[illegible]
Aug. 1	Reef (Zoltoi) only	185	704	79.2	[illegible]
	Total				28,974

a Estimated.

NOTE.—Some bachelors were killed before June 20, but the number was very small and will not affect the general estimate. These killings were as follows:

Date.	Rookery.	Number killed.
May 27	Northeast Point	6
28	Reef	79
June 1	Northeast Point	3
4	Reef	76
8	Northeast Point	3
13	Tolstoi	104
16	Northeast Point	2
	Total	[illegible]

The total number, 28,970, which represents quite accurately the number of seals driven from the hauling grounds during the season, would also represent the number of individual seals on those grounds during June and July, did not the rejected ones return to their place. As it is known, however, that many do so return—and may be considered probable that all those rejected return to one or other of the grounds—it is evident that in this total some seals are counted twice or three times. To find the correct total it will be necessary to make a reduction for those seals which appear in the drives more than once, and this is a most difficult matter on account of the complexity of the problem. Some facts indicated in the foregoing table are of interest in this connection.

It will be observed that the number of seals on each of the rookeries is practically the same at different parts of the season. This agrees with what appears to the eye to be true; that is, in a short time after the bachelors have been driven from a hauling ground there appear to be as many seals present again as there were at first. The numbers from the foregoing table are as follows:

Northeast Point:
- June 20 3,564
- July 8 (to 10) 3,631
- July 22 3,063

Reef:
- June 24 3,055
- July 15 3,460

Halfway Point:
- June 26 1,150
- July 17 1,117

Zapadnie:	
July 2	2,266
July 19	2,690
Lukannon:	
July 3	1,011
July 27	1,217

Again, the proportion of seals rejected from the killing grounds increases gradually as the season advances. As shown by the table at the first killing I observed that 50 per cent of the seals driven up were rejected. This was on June 26. On August 1, the last killing of the season, the per cent rejected was 79.2 of the whole number driven up. The increase in the proportion of rejected seals is reasonably regular. That there should be such a proportional increase is of course to be expected, but it appears to be a fact that the relative proportion of killable seals decreases as the season advances, whether a hauling ground has been swept over previously or not. Thus, 50 per cent of the seals were rejected from the first drive from Polavina on June 26, and 64 per cent from the first drive from Lukannon on July 3. Similarly, we find that 73 per cent were rejected from a third drive from Northeast Point on July 22, while 76.5 per cent were rejected from a second drive from Lukannon, which took place five days later.

Another matter to receive attention before a general estimate is made relates to the length of the period during which the bachelors are arriving at the island. My own observations are of no value in this connection, because, as the foregoing table shows, the two largest hauling grounds at least were full before I arrived. It is necessary, therefore, to refer to the statement of other observers on this point.

Bryant, referring to the year 1869, states that "by the middle of June all the males, except the great body of the yearlings, have arrived." (N. A. Pinnipeds, p. 384.) The American Bering Sea commissioners, quoting various observers, state that they "begin to arrive in the vicinity of the islands soon after the bulls have taken up their positions upon the rookeries, but the greater number appear toward the latter part of May." (United States, No. 6, Bering Sea Arbitration, p. 120.)

These statements are not so definite as could be desired, and I do not find any others that are more so; but from the foregoing table it appears probable that while the hauling grounds fill up early in June, bachelors continue to arrive in greater or less numbers until August. If this is not the case it is difficult to understand how so comparatively large numbers of killable seals can be found late in July.

Whether the seals return to the same hauling grounds as that from which they are driven is perhaps of no great moment, as the net result appears to be the same whether they do or do not.

Taking the six weeks in the foregoing table as the period during which the hauling grounds are full, we can arrive at a conclusion regarding the number of bachelors in the following way:

The number killed between June 20 and August 1, as shown by the official count, is 11,045. Earlier in the year 353 were killed, making a total of 11,398. To this amount is to be added the number rejected from the first drives from each of the several hauling grounds, viz:

Northeast Point	1,603
The Reef	1,487
Halfway Point	575
English Bay	1,126
Zapadnie	1,405
Lukannon	647
Total	6,843

We have then to find out how many new individuals were among the seals rejected from the subsequent drives. The proportion rejected from the first drive from Northeast Point was estimated as 45 per cent; from the second drive, 60 per cent and 65 per cent, or an average of 62.5 per cent; from the third drive, 73 per cent. The increase in the second and third drives is 17.5 and 28 per cent, respectively. These percentages we may take to be those of the new individuals.

We may make up the total, therefore, in the following manner:

Number killed June 20	1,961
Rejected June 20	1,607
Number killed July 9 and 10	1,391
Additional per cent rejected July 9 and 10	216
Number killed July 22	827
Additional per cent rejected July 22	413
Total	6,415

This may be taken as the number of seals on the hauling ground during the six weeks. Treating the other hauling grounds in the same manner, we have the following amounts:

Northeast Point	6,415
Reef	5,933
Halfway Point	1,692
English Bay	1,877
Zapadnie	3,551
Lukannon	1,561
Total	21,049

This, it will be observed, is considerably less than the number driven, viz, 28,970, but it represents, in my opinion, much more nearly the correct number of seals present on the hauling ground during the period.

This total, 21,049, is based on the assumption that all the bachelors have arrived by August 1. But as at the last killing, on that date, about 20 per cent of killable seals were still obtainable from the number driven up, it would appear that if killings were made later (at least up to the end of August) a small number of new seals would be obtained.

I calculate that this would not exceed 2,000 seals for all the hauling grounds. Adding this to the total previously obtained, we have 23,049 for the whole number of bachelor seals on the hauling grounds during the season. This includes only the grounds from which drives were made, and we have yet to consider the grounds at Ketavie and the Lagoon, which were not disturbed; also the areas back of the breeding grounds and the fringe at the water's edge. For the Ketavie hauling ground I estimate from my observations that the number should be about 500, for the Lagoon hauling ground 400.

For the areas back of the breeding grounds and the water front no reliable estimate can be made. These bachelors are constantly moving about, and were also more or less disturbed in some places this season, at least by persons passing to and fro. The bachelors at the water's edge doubtless go to the terminal hauling grounds, and may perhaps safely be regarded as already estimated for.

If one-tenth were added for these scattered bands of bachelors, it would probably be sufficient; but this is a purely nominal estimate.

To recapitulate, the total is made up as follows:

Number of seals killed May 27 to August 1	11,398
Additional seals on the hauling grounds from which drives are made	9,651
Seals on the hauling grounds from which drives are not made (Ketavie and Lagoon)	900
Number of seals in scattered bands back of the rookeries	2,195
Total	24,144

Bringing together the estimates for all the classes of seals, we have the following:

St. Paul:		
Bachelors	24,144	
Breeding bulls	3,839	
Cows	61,436	
Pups	46,077	
		135,496
St. George:		
Bachelors		
Breeding bulls	563	
Cows	8,987	
Pups	6,741	
		20,481
Total number of seals on both islands		155,977

In my judgment the foregoing estimate is fairly reliable; but it should be remembered that it is only an estimate. In a matter so extremely complex, and with factors so constantly varying, I do not think any estimate can be made which will approximate the truth more than somewhat remotely.

The chief use of such calculations in the present connection is, in my opinion, for the elimination of fanciful estimates of the number of seals. Thus, a statement that there are a million or half a million seals on the islands may safely be disregarded, as may equally any claim that there are but a few thousand remaining. It is probably as important to know how many seals are on any one or two of the rookeries as to know how many are on all of them, and this can be ascertained with fair accuracy, as shown by the enumerations of Ketavie and the Lagoon rookeries made this year. If it is found in July, 1897, that there are 3,000 cows on the Lagoon rookery, it may be fairly asserted that this rookery has doubled in two years.

PRESENT CONDITION OF THE ROOKERIES AS REGARDS THE DECREASE OF SEALS.

The three questions to which my attention was directed before visiting the islands as the most important ones for consideration are extremely difficult to answer. They relate to the present conditions as regards the decrease in the number of seals, the cause of the decrease, and the remedy. I realize now, perhaps even more fully than before I visited the islands, how difficult it will be to find a solution to these problems which will fill every need and meet every objection. Nevertheless, I address myself to the task, with the hope that what I have to offer may prove at least suggestive.

As regards the decrease in the number of seals, there is little to say. All persons who have visited the islands in recent years are agreed that a decrease has taken place, and I found no reason to dispute this conclusion. Being on the ground during only one season, I was unable of course to make comparative observations, but the condition of the rocks and herbage back of the present rookeries testifies in an unmistakable manner to the fact of their greater magnitude in past years. To take one instance: On the great inclined plain or "parade ground" on the reef, which is now covered with low grass and flowers, and from a little distance resembles a lawn of large extent, the cavities of the lava bowlders are filled with a dull felt-like substance, which upon examination proves to be composed chiefly of hairs of fur seals interwoven and matted down. This substance could not be made up from stray hairs

blown hither and thither by the wind, or from such as might be left by the passing seals during a drive. It betokens the former presence of numerous seals for a considerable period on ground now completely abandoned.

Wherever this matted hair is found abundantly the tops of the rocks are worn smooth, a condition due clearly to the presence at some time of living seals.

At the back of all the rookeries, often for a distance of 200 to 300 feet or still more, this phenomenon is observable, and even among the high grass farther back, where the rocks are abundantly covered with lichens, a careful examination reveals the presence of matted hair, though usually in a friable and decomposed condition.

On the Reef "parade ground" I examined an area about 50 feet square, which, according to photographs taken by the commission in 1891, was completely bare in that year, and found that it was fully one-half covered with grass and flowering plants. This indicates that some of the changes at least are of very recent origin, and can in nowise be regarded as ancient.

Such facts as I have mentioned demonstrate that at no distant time in the past the seals covered much more ground than they did this year.

Of the changes which have taken place since last year I can not speak entirely from personal experience. For a knowledge of the conditions in 1894 I have relied on the photographs and charts prepared by Mr. Townsend, naturalist of the *Albatross*. These charts and photographs for 1894 I examined to some extent while on the ground this summer, and more in detail since returning to Washington. In the latter instance I have had the advantage of comparing, side by side in company with Mr. Townsend, those of 1894 with those of 1895.

The work this year was done about ten days later than last, on account of the backwardness of the season. Making all allowances for seasonal and other influences, I have no hesitation in affirming that the seals were considerably less abundant this year than last.

As already explained, the photographs were made under conditions unfavorable in many ways, and some of them are not serviceable for comparison. In others the shrinkage of the rookeries is very noticeable and should be evident to untrained eyes. This is true of the views from stations 1, 4, and 5, Northeast Point; stations 21 and 24, Polavina; station 12, Lukannon; stations 14, 14½, and 15, Ketavie; stations 16, 17, and 18, Reef; station 11 and Station F, Tolstoi; station 7[a], Lower Zapadnie; station, 2 North rookery (St. George), and Station B, Little East rookery (St. George). The changes which are observable result chiefly from a recession from areas of the rookeries, or a general shrinkage along the inland borders. Accompanying these changes is a tendency in breeding grounds, formerly of great continuous length, to break up into detached areas. This is very noticeable at Northeast Point, Polavina, and Lower Zapadnie, St. Paul, and Great East, North, and Zapadnie rookeries, St. George, and may be observed both in the photographs and charts of 1895, when compared with those of 1894. As Mr. Townsend informs me that he will report on these changes in detail, and as the photographs and charts are his own work, and furthermore, as his experience runs back over many seasons, I do not deem it important to enter more into details here. I agree with Mr. Townsend that a noticeable shrinkage of the breeding grounds has taken place since 1894. I regard the herds as in a very precarious condition as regards preservation, and while it is obviously impossible to fix limits in such a case, if the off-shore sealing operations continue as at present I should expect to see the cows practically exterminated in less than five years.

CAUSE OF THE DECREASE OF SEALS.

It has been generally conceded that the decrease of the seals is due to human interference, and in view of the many known cases of extermination by human agency there is no reason for dissent from this opinion. When we go a step further, however, and inquire what special form of interference is responsible for the results observed, we are met at once by diversity of opinion. Men have located and carried on the ordinary operations of life on the seal islands. They have killed seals on the islands. They have intruded upon the resorts of the seals and driven off certain classes of these animals. They have killed mature males and young on land, and both males and nursing and pregnant females at sea. Some of these operations ceased many years ago, and others are still carried on. Out of all these factors of destruction, old and new, we are called upon to select the one or ones which are responsible for the effects observed, and with whose cessation the decrease would likewise cease. In the present state of knowledge I conceive that this can not be done in such a manner as to place the matter beyond dispute. Conclusions have to be based largely on opinions, rather than on facts, and as long as these opinions can be challenged the conclusions will fail to receive universal acceptance.

Putting aside the effects of all past forms of interference, however, as intangible, we know what operations are going on to-day and what is the condition of the seal herds. We know that the seals of all classes have greatly decreased in number and have shown that the decrease is still going on. We know that considerable numbers of male and of nursing and pregnant female seals are killed at sea, and that considerable numbers of male seals are killed on land. Now, whether few or many males remain is of no consequence, so long as there are enough to fertilize the females.

My observations during the past summer show that there are enough, and that they are desirous of taking part in reproduction. If this is not true, why are there always males hovering about the water's edge and attempting to intercept the females as they leave the rookeries? Why are there small harems at the water's edge (and even in the water) which are constantly being broken up by the stronger bulls near by? Why are there new harems formed at the back of the rookeries (the cows with pups) at the close of the season? Why are the pups harassed? If there were not enough bulls to fertilize the females, or if the bulls lacked vigor, none of these things would occur. But they do occur, as I witnessed with my own eyes. Hence, I do not hesitate to state that, in my opinion, the number of bulls is sufficient for present purposes of reproduction, and that the bulls are virile. It is not to be inferred, however, that the number of males has not decreased. This is conceded, but, as already stated, the fact is of no interest in the present connection if enough remain.

When we turn to consider the female seals, we find that the question assumes a very different aspect. It is useless to inquire whether there are enough females. Even if the islands of St. Paul and St. George were covered completely with female seals, there still would not be too many, provided there were males enough to fertilize them. When, however, we find the females decreasing year by year, there is every cause for alarm. Taking the condition regarding males as they are to-day, the question we are considering resolves itself to this: What is the cause of the decrease of female seals? If we can not find a cause

which will be accepted by the unwilling as the sole cause, we can at least point to one which everyone must admit demands serious consideration. We have the sworn testimony of the Treasury agents of the islands that they counted this fall on St. Paul 23,000 dead pups. Every unbiased observer is convinced that the cows suckle only their own offspring; hence, unless these pups died of natural causes, it is certain that 23,000 cows were destroyed at sea. That a large number of cows were destroyed by sealers we know from the investigations of the commission, and we know, also, that the pups were in such positions and condition as to indicate clearly that they died of starvation. Is there any reason to look elsewhere for the cause of the decrease of the females? Certainly not.

Now, whether this is the only cause of the decrease of females or not is of no great moment, since, in its operation, it is a sufficient one to depopulate the rookeries. He would be regarded a very foolish man who should spend time and money in investigating obscure causes of the loss of his fowl while the fox was openly stealing hens from the roost. So long as a sufficient cause of destruction is discovered, it is of no practical importance to search for others, since if this one continues to operate it will destroy the rookeries, whether other causes are discovered and eradicated or not.

As it was a part of my instructions to search for obscure deleterious agencies, however, I will say that I kept the matter constantly in mind, but was unable to discover anything of importance. The seals appeared to be healthy and vigorous. I did not see more than five adult dead seals about the rookeries during my sojourn on St. Paul. These were all males. Mr. Townsend informed me of the presence of a dead female on Ketavie rookery, but I did not see it myself. It may be said that there is no mortality of females on the islands before the pelagic sealing begins, as there certainly would be if the seals were in anywise diseased.

No recognized enemies were observed about the islands, with the exception of two killer whales. These I observed for a short time in front of Ketavie rookery, but they appeared only once. The imperfections which one finds among the seals are all such as have their origin in wounds received during combats or result from falling or jumping from high places on rocky ground.

REMEDIES FOR THE DECREASE.

If it be true that the present shrinkage of the rookeries is due to human interference, as I believe it is, the simplest and most effectual remedy would, of course, consist in stopping for a term of years all sealing operations of whatever character and wherever prosecuted. It is certain that no harm could result to the seal herds from this proceeding, and even if the proposition that the decrease is due to human interference should not be sustained (improbable as that may be), the experiment would be worth all it might cost. It may be deemed, perhaps, that the application of this remedy is impracticable for reasons of state, as well as on account of the injustice to those persons who have money invested in apparatus of the fishery. If the present international situation is such that no change covering the whole fishery can be made, it is useless to consider the subject of direct remedies.

It is not within my province to decide whether such a cessation of all sealing operations can or can not be brought about. Taking it for granted that it can not, I may mention two plans, in the nature of indirect remedies, which seem to me worthy of consideration. One of these

at least has occurred to other investigators, but whether prior to my own studies I can not say.

It appears to me entirely feasible to brand the seals with a property mark. If the cows are to be so treated, it would be best to place the brand on the back, where it could be plainly seen. This would also have the effect of rendering the skins of the cows unmarketable, and there would be no object in destroying them.

It is, of course, taken for granted in proposing this plan that property so branded would be recognized as property on the high seas. Whether this would be the case I can not venture to decide.[1]

KILLING OF FEMALES BY THE GOVERNMENT OBJECTIONABLE

In conclusion, it may be proper for me to remark that I should deprecate most earnestly the adoption of any plan to bring the fur-seal question to an end by a wholesale butchery of all the seals, male, female, and young, on the Pribilof Islands. I do not think that our Government or any other could maintain its dignity while pursuing such a course. It could only be regarded as a work of spite, which would be unbecoming in an individual and much more so in a nation.

No one having the smallest spark of love for nature and her works who had visited the fur-seal islands could for an instant entertain a proposition for the slaughter of the seal herds. To any such it would seem little less than wholesale murder.

Putting sentiment aside, it does not seem to me that such a course is necessary. Even if the patrol of Bering Sea is suspended and sealers are allowed to approach the islands, the time will speedily come when sealing as an industry will cease to be profitable and will be abandoned. There will still be a remnant of seals which, unmolested, will increase and once more cover the breeding grounds. In the interval there would be time for the cultivation of public sentiment in this country and Europe favorable to the preservation of the seals, and to arrange plans of international protection.

On the other hand, if the breeding seals are slaughtered on the rookeries, one more species will be added to the already formidable list of those which have been exterminated by unwise and improvident human action. Such a proceeding would be in the highest sense immoral, and no less inconsistent with the true aims of a civilized nation.

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[1] Mr. True suggests further in respect to this subject that, in case of the presence of pelagic sealers in Bering Sea next season, the entire body of seals might be driven back from the rookeries and retained in the inland lakes and lagoons for about six weeks, or during the period when pelagic sealing is mainly carried on in that region. The execution of such a plan is entirely practicable with regard to all grown seals of both sexes, but it would result in the destruction of the pups born that season. If, however, the seals were held inland for only three or four weeks, the majority of the pups would probably be saved, as they could exist for that length of time without feeding, while the retention on land of the grown seals, even for so short a space of time, would undoubtedly cause the abandonment of nearly all pelagic sealing.

OBSERVATIONS DURING A CRUISE ON THE SEALING SCHOONER LOUIS OLSEN, AUGUST, 1894.

By A. B. ALEXANDER.

LETTER OF TRANSMITTAL.

U. S. COMMISSION OF FISH AND FISHERIES,
Washington, D. C., January 5, 1895.

SIR: In response to your request of the 3d instant for copies of the reports for 1892, 1893, and 1894 of Mr. Townsend on the seal rookeries of Alaska, and the report for 1894 of Mr. Alexander on pelagic sealing, I beg to state that no report on the condition of the seal rookeries in 1892 was made by Mr. Townsend, the subject having received the attention of Mr. J. Stanley-Brown, a special agent of the Treasury Department. Mr. Townsend's report for 1893 was transmitted to the Secretary of the Treasury on February 26, 1894, and a second copy, as also Mr. Townsend's preliminary report covering the work of 1894, to the Assistant Secretary, Mr. Hamlin, on December 4 and 5, 1894. Herewith I have the honor to forward copy of the report of Mr. Alexander covering his observations during the summer of 1894 on pelagic sealing.

Very respectfully,

HERBERT A. GILL,
Acting Commissioner.

Hon. O. S. HAMLIN,
Acting Secretary of the Treasury.

CRUISE OF THE LOUIS OLSEN IN BERING SEA.

On May 28, 1894, I left Seattle, Wash., in the *City of Topeka* for Sitka, and from there took passage in the *Crescent City* for Unalaska. Soon after arriving at the latter place I joined the *Albatross* and remained by her until the evening of the 29th of July, when I joined the pelagic sealing schooner *Louis Olsen*, of Astoria, Oreg., Captain Guillams, master, who very willingly gave me passage for the purpose of making observations on the seals taken by him during the open season in Bering Sea.

The next day, in latitude 54° 38′ north, longitude 167° 04′ west, we saw our first seals, 20 in number, 12 of which were "sleepers." In the afternoon we saw 6 seals about a half mile from the vessel playing in a bunch of seaweed. The sea at the time was perfectly smooth, with a light air stirring. Two hunters and myself started out in a boat to

watch them and see how near we could approach without disturbing them. We soon learned that they were unusually tame, as we approached near enough to touch one with a spear pole. They showed little signs of fear notwithstanding that we were within 30 feet of them for fully five minutes. Diving under the seaweed and suddenly thrusting their heads up through it seemed to afford them great pleasure. They paid but little attention to us and seemed almost indifferent as to how near we approached, so long as we did so quietly. This caused the hunters to exclaim several times, "If we only had a gun we could kill them all." Under the circumstances it was but natural that the thought of a gun should be uppermost in their minds. Early in the spring, both on the Northwest coast and off the coast of Japan, seals are sometimes found which evince little signs of fear, but after one day's shooting on the ground they become very wild and mistrustful, and, like a crow and some land animals, seem to scent a gun in the air.

The following day, July 31, seals were plentiful. The wind being light during the previous night, our position had changed but little.

On August 1, at a very early hour, the spears were brought forth and the seal on them broken. While this was going on many remarks were made in regard to the first day's trial. Some of the hunters were already discouraged, and were confident that they were only wasting time by attempting to use spears. The thought of being obliged to adopt the primitive weapon of the Indian was indeed humiliating to them. A few on board felt more hopeful and were willing to give the spear a fair trial. Ever since leaving Unalaska the hunters had been practicing at throwing the spear pole. Every piece of floating seaweed or other object which came within range had been a target. On several occasions the boats had been lowered and a supply of chips and small pieces of wood taken along. These were thrown ahead of the boat as targets to throw at. It was soon found that an object that could be readily hit at a distance of 25 or 30 feet from the vessel was not so easily reached from a boat, as the smallest wave would cause the latter to move just enough to make the pole go wide of its mark. A day's practice in throwing from the boats had the effect of teaching the hunters the various ways of holding the spear to make more sure of its hitting the mark under the many conditions of sea and wind. All this time spear throwing had been carried on with lifeless objects for a mark. The opportunity was about to present itself of exhibiting skill in throwing at something which, if missed the first time, would not be likely to remain stationary long enough to give the marksman another trial. A cool head and steady nerves would be the special requirements to insure a successful day's hunt should seals be plentiful.

The first day of August did not prove a success so far as sealing was concerned, the weather being too foggy to send out the boats. Scattering seals were observed all day, but they were all "travelers"; that is, they were all moving in various directions. Our noon position was latitude 56° 11′ north, longitude 172° 01′ west. The next day seals were less numerous. None were observed in the forenoon; in the afternoon 12 were seen, of which all but 1 were traveling to the westward. This individual was asleep; a boat was quickly lowered and the hunter on watch was rowed toward it. Before the boat had covered half the distance the seal showed signs of waking and shortly after becoming aware of approaching danger it disappeared. Our noon position on this day was latitude 57° 21′ north, longitude 173° 46′ west. Seals here were not so plentiful as they were farther south. In the afternoon we hove to and caught 2 cod in 65 fathoms of water. No more seal life was

observed until the afternoon of the following day, when 2 sleeping seals were sighted in latitude 57° 50′ north, longtitude 173° 48′ west. Five boats were sent out. They returned at 5 p. m., having taken no seals, although 8 had been seen, but they were all "travelers." Heavy fog and strong indications of the wind breezing up fresh caused the boats to return earlier than they otherwise would. In the evening, the vessel being hove to, several seals came close alongside. They seemed to be very curious to know what we were. All the spears on board were repeatedly thrown at them, but they had the good sense to keep just out of range. Whistling had the effect of enticing them close aboard, but the sight of a spear or two being aimed at them would cause them, without any apparent effort, to increase their distance by 20 or more feet.

The first seal captured by the *Olsen* was on August 4 in latitude 57° 50′ north, longitude 173° 48′ west, the same position recorded on the previous day. At 8.45 a. m. sail was made and at 10.45 the boats were lowered, 2 "sleepers" having been seen. The weather being foggy the boats were soon lost to sight. The vessel was hove to, it being much easier for the boats to keep the bearing of the vessel than for the vessel to keep track of the boats.

As soon as the boats had left, a hand line was put over in 70 fathoms of water. An hour's fishing resulted in 18 cod, the average weight of which was about 12 pounds; the largest weighed not far from 30 pounds. All but 2 of the cod were in a healthy condition; these 2 had sores on their backs about the size of a half dollar, which had eaten nearly to the back bone. This instance is especially mentioned on account of the position of the sores. In both cases they were situated near the neck directly over the vertebra; they were as round and smooth as if cut with a knife.

Notwithstanding that the fog did not lift during the day, the boats remained out until 9 p. m. The result of the day's hunt was 12 seals, 4 males and 8 females. One of the seals had previously been speared in one of its flippers, as it was nearly severed from its body, showing that the seal must have had a hard struggle to free itself. The largest number of seals was taken by two boats, each bringing in 5; two other boats captured 1 each, and the remaining two boats brought in nothing. About 50 seals had been observed from the boats, the most of which were awake. Only an occasional individual had been noticed during the day from the vessel, the fog being too dense to see more than an eighth of a mile. In no instance was the first seal thrown at captured, and it was only after repeated attempts by each hunter that one was hit. The excitement produced by the desire of each hunter to be the first to capture a seal, combined with the inexperience of throwing the primitive weapon, was no doubt the chief cause of the poor results. The 8 females captured were all nursing seals; but little food was found in their stomachs, and that was too much digested to determine its character.

On the 5th the wind and weather were not suitable for sealing, a very fresh southeast wind prevailing, and in order to keep our position the vessel was hove to under easy sail. A large number of seals was noticed. They apparently had no fixed course, but would swim in one direction a half a mile or so, and then turn and go in an opposite way. The wind continued fresh, with a rough, choppy sea until the following noon, when the fog which had come in during the night lifted and the wind suddenly subsided into a calm. The boats were put in readiness and sent out for an afternoon's hunt. Considering the state of the sea

and the time of starting, a fair afternoon's work was done, 19 seals being landed on deck by 8.30 p. m. Fifteen of the number were females and 4 males. Only 6 had food in their stomachs. Every hunter reported seals numerous, about half of the number being asleep. They slept in bunches of 6 and 8, and when aroused from their slumber were very tame, but owing to the inexperience of the hunters with spears in a comparatively rough sea, the successful throws were few and far between. Had the hunters been provided with shotguns, instead of spears, it is safe to say that a hundred or more seals would have been nearer the day's catch. During the absence of the boats a large number of traveling seals had been seen from the vessel, and also an occasional "sleeper." One of the latter was observed close aboard a little on our lee. It evidently was sleeping soundly, for neither the slatting of the sails nor the blowing of the fog horn had the effect of awakening it, and it was only when the scent of the vessel reached it that it showed signs of life. After being fully aroused it did not exhibit any great signs of alarm, but played about not far off for sometime. It seldom happens that a seal will show such indifference to its surroundings as this one. The captain and mate said they had never in all their experience seen a seal so tame. The general opinion on board was that it was due to there being no firearms used or hunting allowed in Bering Sea for the past few years that caused the seals thus far observed to show so little fear of man.

The largest catch during any one day was taken on August 7. The day commenced with a gentle breeze from the south and a smooth sea. A light fog hung low over the water, which prevented the boats from being seen more than 20 yards. At 8 a. m. the last boat shoved off, and they did not appear again until evening. The noon position of the vessel was latitude 58° 30′ north, longitude 173° 56′ west. In the forenoon hand-line fishing was carried on. The depth of water here was 60 fathoms. Six good-sized cod were caught in quick succession; 2 males and 4 females. Their stomachs were well filled with food. In the stomach of a large female was found an octopus which had recently been swallowed, as its skin showed no discoloration. Cod were abundant, and we could have filled the decks in a day's fishing with a single line. Their abundance may have been the cause of seals being plentiful in this region. In the evening the boats all returned nearly at the same time, bringing in 34 seals, 30 of which were females. Twenty-four of the number had food in their stomachs. The material, however, was finely masticated and hard to identify, but a portion of it looked very much like the flesh of cod. If this supposition is correct, the question arises, Did the seals dive to the bottom in 60 fathoms and bring their prey to the surface? As a rule cod are found very close to the bottom, especially in deep water, and it is not probable that they were at or near the surface here. The most satisfactory evidence the writer ever had that seals are deep divers was obtained two years ago on the Fairweather Ground, a large bank off the coast of Alaska, while on a cruise in the revenue cutter *Corwin*. We were about to return to the ship, at the end of a successful afternoon's hunt, when a large male seal suddenly came up close to our canoe—not over 30 feet away—with a very large red rockfish in its mouth, which it immediately proceeded to devour. The fish was alive, and could plainly be seen struggling in the seal's mouth. Our position at the time was some 75 or 80 miles offshore from Yakutat Bay. We had no means of ascertaining the depth of water, but it could not have been much less than 100 fathoms. The red rockfish, like the cod, also generally swims close to the bottom,

although it may possibly sometimes feed near the surface. The writer does not maintain that seals can go to the bottom in 100 fathoms, but he does believe that they can dive much deeper than is generally supposed.

All the hunters on this day reported seals plentiful, but could find very few asleep. Had the sun been shining it is safe to say that the majority of those with food in their stomachs would have slept during the greater part of the day, for as a rule seals with full stomachs sleep when the sun is out, the air warm, and the sea smooth, or comparatively so. Their time of sleeping, however, is not always when conditions are favorable, for after a gale of long duration they are frequently seen asleep when the air is cold and the sea uncommonly high, at such times being completely exhausted. It is not an infrequent sight during the winter and spring months, at the end of a long and heavy gale, to see seals sleeping soundly in a snow storm, the exposed portion of their body being covered with snow. In consequence of the seals being restless on this day, a great many of the 34 taken were what is known to sealers as "finners," that is, about half asleep, rolling about and scratching themselves. Sometimes "finners" are hard to approach, and at other times very easy. A restless one will try very hard to take a nap, but just as he gets comfortably fixed something disturbs him, and holding his head up he will take a look all around as if danger were scented. They are then difficult to spear.

Indians seldom pay any attention to moving seals when hunting with spears; they think it a waste of time. White hunters, when they can find no sleeping seals, frequently give chase to "finners" and "travelers," and in many cases are rewarded for their trouble. The hunters on the *Olsen* soon found that few seals could be taken on certain days if they only selected sleeping ones. Many haphazard throws were made at swimming and finning seals, the majority of which were failures, but enough good shots were made to make the experiment a paying one.

For several days seals had been observed chasing some kind of fish, and during this last day's hunt they were quite plentiful. Only a single individual would be seen; it would dart first in one direction and then in another, and occasionally would make a desperate leap out of the water. Presently a seal would be noticed not far off swimming as rapidly and in as many different directions as the fish. On the day in question 2 seals were speared just as they came to the surface, each with one of these fish in its mouth. The seals did not relinquish their hold when speared, but kept a firm grip until knocked on the head. The fish proved to be Alaskan pollock. Both of the seals were large males, one probably between 8 and 10 years old.

The two following days, August 8 and 9, the weather was too boisterous for sealing; wind southeast and every indication of a gale. We lay to under the foresail in order to keep as near our position as possible. A heavy sea set in from the westward, but the wind did not increase above a strong breeze. Scattering seals were about each day, all traveling to the westward. From observation we learned that during stormy weather seals traveled in an opposite direction to the wind. In a gale they are far more numerous on the lee side of the Pribilof Islands than to the windward of them. When the wind is heavy and the sea rough seals as a rule travel from the seal islands directly to leeward or nearly so. Just how much the wind changes the course of the main body of seals would be hard to say, but so far as our investigations extended, in connection with the traveling herd which came under our notice, we are inclined to think that seals within 100 miles of the seal islands bound to the feeding grounds will, in most cases,

seek the grounds to the leeward of the group. Seals in a gale take every advantage of wind and sea; it is necessary that they should, for there is evidently a limit to their endurance.

On the morning of the 10th light winds prevailed, but a choppy sea, combined with a long, rolling swell from the west southwest, rendered it unfit for sealing, although scattering seals had been noticed. Two days of idleness had made everybody on board anxious to get out in the boats. In the afternoon the wind fell to a calm, and the boats were put over in latitude 58° 27′ north, longitude 172° 46′ west, and remained out until evening, bringing in only 3 seals. Very few were seen from the boats, although they covered considerable ground during the day. Seals were equally scarce in the vicinity of the vessel, only 6 being observed. One of these, more bold than the others, kept circling around the vessel, coming nearer each time. Finding that it was inclined to be inquisitive its approach was encouraged by continual whistling by those on board. It was finally enticed alongside and captured, the spear passing through one of its hind flippers. It fought bravely for life while in the water, but on being hauled on board its power was greatly lessened. It did not, however, give up without a desperate struggle to regain its liberty. At one period of the fight it drove everybody from the main deck, and it was only when a noose was thrown over its neck and its head hauled down to a ring bolt that it was mastered and could be knocked upon the head. The catch of seals for the day was 4, 3 females and 1 male. The total catch to date had been 69, 13 males and 56 females.

The next day, August 11, the boats made an early start. Everything looked favorable for a good day's hunt, the wind being light and the sea smooth—two things which are almost indispensable in seal hunting. No seals had been noticed during the morning, but it does not necessarily follow that because none are observed from the vessel they are not about, for it frequently happens that good catches are made under those circumstances. This was not one of those exceptional days, however, the catch amounting to only 13—3 males and 10 females. Seals had been comparatively plentiful, but were not inclined to sleep and were too wild to approach. A piece of an Alaskan pollock taken from a seal's mouth was brought in by one of the hunters. A series of trials was made for bottom fish, but with negative results; we seemed to be drifting over barren ground. The noon position on this day was 57° 42′ 38″ north latitude, 172° 52′ west longitude.

Our pleasant weather was about to be broken for a considerable length of time, for the 12th began with a gale from the southeast, accompanied by a heavy sea. We lay hove to under single-reefed foresail and trysail. In the afternoon spoke with the schooner *Teresa*, of San Francisco; also saw the schooner *Kate*, of Victoria, British Columbia, a short distance away. Seals were frequently seen all through the day. In the early part of the night the wind increased to a heavy gale, but in the latter part it decreased in force and hauled to the west southwest. A heavy sea kept up all day. In the forenoon a vessel was sighted low on the horizon. An occasional seal was observed.

On August 14 the weather was pleasant, but the wind fresh from the westward. In the evening we boarded the schooner *Fawn*, of Victoria, British Columbia, which reported losing a boat and three men on the 11th, but they were afterwards picked up. The *Fawn* had an Indian crew and had taken 20 skins in Bering Sea. This news gave our hunters considerable encouragement. The noon position was latitude 57° 37′ north, longitude 173° 14′ west.

August 15 was marked with pleasant weather in the early part of the day, becoming very squally in the latter part, with rough sea. Noon position, latitude 57° 11′ north, longitude 173° 09′ west.

On August 16 we had variable weather; clear in the morning, thick and squally in the afternoon, with very rough sea. But few seals were seen. The noon position of the ship was latitude 57° 04′ north, longitude 172° 30′ west.

At 7 a. m. August 17 made sail and ran to the southward; wind northwest and fresh, gradually decreasing to a light breeze in afternoon. A heavy fog came in later in the day. Noon position, latitude 56° 54′ north, longitude 172° 45′ west. We continued on our course until 8 a. m. the next day, when we saw a seal "finning" close by. A boat was quickly manned and started in pursuit, but the seal was on the alert and escaped. Shortly after this a "sleeper" was noticed not far off on the weather bow. Another boat was hoisted out and rowed quietly toward it, no attempt being made to throw the spear until within 20 feet. It was easily captured. Its stomach was found to be well filled with food, which was no doubt the cause of its sleeping so soundly.

Later in the day all the boats went out, but returned at the end of three hours with only one seal. The sea was smooth, with little wind stirring, but the air grew suddenly chilly and the sky very cloudy, which practically put an end to the chances of seals sleeping for the day. The hunters claimed that had they been provided with guns the day's catch would have been at least 60 or 70 seals. On a day like this when seals showed no inclination to sleep shotguns in the hands of skillful hunters would have done very destructive work. In the early days of pelagic sealing the hunters sought sleeping seals only, but they have learned the movements of the seal so thoroughly that "travelers" and "finners" are almost as readily taken as sleeping ones.

Hand-line fishing was carried on from the vessel in 60 fathoms of water. In one hour 10 cod were caught, their average weight being about 9 pounds. It was estimated that the largest weighed 30 pounds, the smallest 4 pounds. In their stomachs were found small starfish, prawns, squid, medusæ, and a quantity of decomposed fish.

Unfortunately, this was our last day's hunt, as from this time on we had stormy weather and heavy gales. Eighty-four seals had been taken—16 males and 68 females. All the females were nursing cows except one, which was a yearling. The last seal caught by the *Olsen* was taken in latitude 56° 05′ north, longitude 172° 17′ west.

Early in the morning of August 19 the weather was pleasant, with indications of a suitable day for sealing, but shortly after the wind began to freshen from the southeast, gradually increasing in force and hauling to the westward. We lay to under a double-reefed foresail, encountering heavy squalls at times. Our noon position was latitude 55° 39′ north, longitude 172° 12′ west.

On August 20 there was a heavy gale from the northwest and a very high sea running. We ran before the wind for three hours hoping to escape the heaviest part of it, but no perceptible difference was felt. We then lay hove to until 10 p. m., at which time we again kept off before the wind, and ran until 10 a. m. the next day. About this time we saw several seals, and soon after ran close to a bunch containing five, all huddled together. It was evident that they were well tired out, or else they would not have been asleep in such weather. Our noon position was latitude 54° 38′ north, longitude 168° 01′ west. In the afternoon we sighted several vessels.

On the 22d we bore away for Unimak Pass, the wind north-north-

west and blowing a gale, followed by a heavy sea. On the morning of the 23d sighted the lower part of Akutan Island, the top of which was enveloped in a heavy fog. All through the day seals were plentiful, and many of them asleep. During the past few days enough seals had been seen to induce a vessel to lay by and wait until the weather should moderate, but the captain thought bad weather had set in for the fall, and accordingly had made up his mind to go home. He made a mistake in so deciding, for after we had left and were on our way home good catches were made by all the vessels that remained.

At 6 o'clock in the evening we had left Unimak Pass behind us and were standing on an east by south course. The next day, when about 75 miles from the pass, saw a sleeping seal, and 10 miles farther on saw two more. When about 200 miles off shore salmon were noticed jumping. They were so near that we could hardly mistake the species. Whales were also plentiful. For the first two or three days after leaving Bering Sea the weather was pleasant, but during the greater part of the voyage home heavy gales from the westward prevailed. On the evening of September 6 we arrived at Victoria, having been twelve days on the voyage home.

The writer was very kindly treated by the captain, officers, and crew of the *Olsen*, who did everything in their power to forward his inquiries. Had the *Olsen* encountered the favorable conditions which many of the vessels did, much more extensive and important observations could have been made. It was subsequently learned that during the time we were having exceedingly stormy weather, often hove to in a gale, many vessels of the fleet operating several degrees farther south were having pleasant weather and making good catches every day.

SYNOPSIS OF THE SEALING CRUISE OF THE LOUIS OLSEN ON THE JAPAN COAST IN 1894.

The schooner *Louis Olsen*, of Astoria, sailed on a sealing voyage, bound for the coast of Japan, January 1, 1894. Like the majority of sealers intending to hunt on that coast, she made a southern passage, going to the southward of the Sandwich Islands and close to the Bonin Islands. Sealers frequently call at the latter group for water and make such repairs as may be needed. These islands are situated not far from the sealing ground where seals are taken early in the spring.

The boats were lowered for the first time on March 12. The next day and the following one 74 seals were taken. On the 16th a heavy gale from the southeast came on, but subsided on the 17th, when hunting was resumed.

On March 22, in latitude 37° 44′ north, longitude 144° 02′ east, a schooner was sighted bottom up, which proved to be the sealing schooner *Mascot*. She was afterwards seen by other vessels, and attempts were made to cut through her side and secure the skins, of which, it was understood, there were about 500 in her hold, but without success.

It had been noticed that the current was very strong and very irregular, making it difficult to trace the vessel's track by dead reckoning. On the 25th a clear sky afforded the opportunity for a good observation, and it was found that the current had carried the vessel 75 miles to the north-northeast, although she had been headed southwest by south. An irregularity in the currents was subsequently noticed on all parts of the coast visited.

On March 26, in latitude 38° 39′ north, longitude 144° 27′ east, a sealing boat was discovered bottom up, painted green on the outside and red inside. It had been hove to, with mast, sails, and oars out, for a drag. A shotgun, a "sticking" knife, with the letters "W. B." cut in the handle, and a seal skin were found in it, the skin being considerably decayed.

We spoke the schooners *Lillie L.*, of San Francisco, and *Penelope*, of San Pedro, on March 28 and 31, in latitude 39° 02′ north, longitude 144° 44′ east. Heavy gales prevailed until the 1st of April. Fair weather continued until the 9th, during which time 210 seals were taken. Stormy weather again came on, which lasted for three days. On May 11 spoke with the schooner *Casco*, of Victoria, in latitude 39° 43′ north, longitude 142° 54′ east. Very little sealing was carried on until the 18th. On the 19th, two of the boats went astray in latitude 37° 02′ north, longitude 146° 03′ east, and no tidings of them were obtained until the 26th, when the schooner *Kate and Ann*, of Victoria, was spoken and reported that they had been picked up by the schooner *Penelope*, of Victoria.

Sealing was carried on till May 3, when a heavy gale came on, which continued until the evening of the 7th, at which time the *Olsen* sailed for Hakodate. In the afternoon of the next day she entered the Straits of Tangar, and in the evening came to anchor in the above-mentioned harbor.

On May 16 sealing was again commenced in latitude 40° 55′ north, longitude 142° 58′ east, when she also spoke with the *Dora Siewerd*, which reported having 1,300 skins. The following day fell in with the schooner *Penelope*, and received on board the hunters that went astray on April 19. On May 26 picked up a boat and crew belonging to the schooner *Enterprise*, of Victoria, in latitude 41° 50′ north, longitude 142° 26′ east. The next day spoke with the schooner *Umbrina*, of Victoria, which had taken 2,100 skins.

Hunting was carried on without interruption until June 10, the total number of skins taken up to date being 1,055. No more hunting was done on the Japan coast. On June 25 the *Olsen* arrived at Attu Island and on July 15 at Unalaska.

I was informed by the captain and hunters of the *Olsen* that full nine-tenths of the seals taken on the Japan cruise were females, and that it is very seldom that a bull is killed. I have since talked with a number of hunters belonging to other vessels, and they all say that the Japan catch of seals consists mostly of females. A few more males are found at the Copper Islands, but the percentage there is small.

VATIONS DURING A CRUISE ON THE DORA EWERD, AUGUST-SEPTEMBER, 1895.

By A. B. Alexander.

LETTER OF TRANSMITTAL.

U. S. Commission of Fish and Fisheries,
Office of the Commissioner,
Washington, March 9, 1896.

I have the honor to transmit for your information a report by B. Alexander, fishery expert of the United States Fish Com- steamer *Albatross*, entitled, "Report of observations made dur- cruise in Bering Sea in the sealing schooner *Dora Siewerd*, in t and September, 1895." The preparation of this report has only y been completed.

Very respectfully,

Herbert A. Gill,
Acting Commissioner.

Secretary of the Treasury,
Washington, D. C.

CRUISE OF THE DORA SIEWERD IN BERING SEA.

suant to instructions from the Hon. Marshall McDonald, United Commissioner of Fish and Fisheries, to secure passage on a c sealing vessel for the purpose of making a cruise in Bering Sea, he object of gathering information concerning the pelagic habits seals, the methods employed for their capture at sea, their food, oportion of each sex represented in the catch, etc., I left the *Alba-* st Unalaska, the middle of July, 1895, to await the arrival of the g fleet. Subsequently accommodations were obtained, through indness of Capt. H. F. Siewerd, on his vessel, the *Dora Siewerd*, oner of 100 tons register, and one of the largest in the fleet. She d 18 canoes and 2 boats, and a crew of 36 Indians and 9 white As two Indians go in a canoe, the spearsmen and boat steerers equally divided.

writer went on board the *Siewerd* in the evening of July 27, but to stormy weather she did not sail until the morning of the 31st, g under way in company with 27 other sealing vessels. The wind light we were obliged to anchor off Ulakhta Head. Hand lines

were put over here and fishing carried on for two hours, resulting in the capture of 22 cod and 4 halibut.

Early in the afternoon, with a light wind from the eastward, we worked toward Cape Cheerful, which, the next morning (August 1), bore southeast 25 miles, the fleet by this time being considerably scattered. At 9 a. m. 2 sleeping seals were observed, and shortly afterwards the vessel was hove to and the canoes put over. Each hunter among the Indians was anxious to secure the first skin, a superstition prevailing that he who kills the first skin at the beginning of a cruise will be attended with good luck during the remainder of the season. No time was lost in getting the canoes in the water, as a number of other vessels in sight had already lowered their boats. After the canoes had gotten about 2 miles ahead, the vessel followed in their wake; and as the day was clear they could be seen for a long distance. Occasionally a sail would be seen to lower, which indicated that the canoes were among seals.

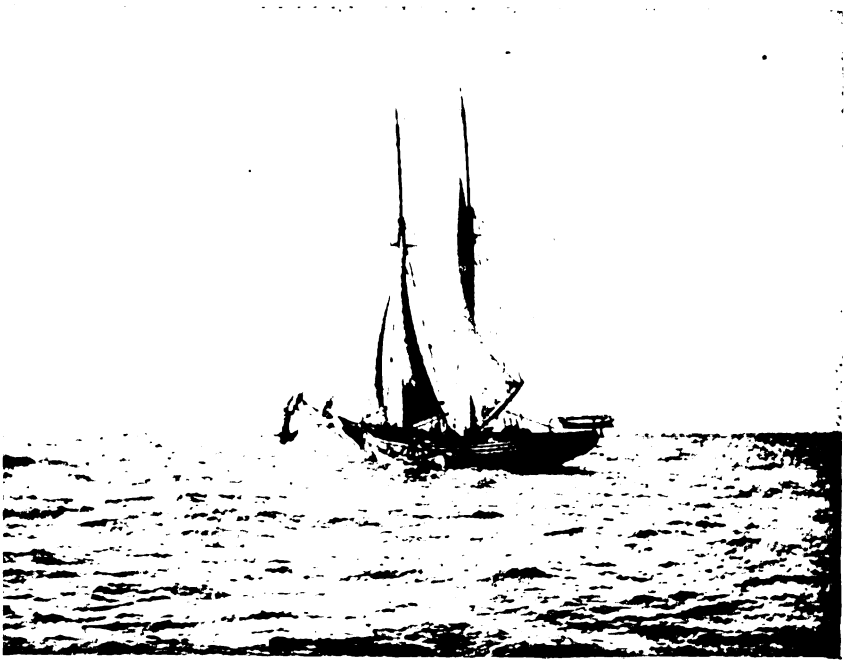
Before entering into a discussion of the details of my observations it may be well to state that the positions of each day's catch will be found in appended Table No. 1, the same corresponding with those given in the vessel's official log. The noon position each day is shown in Table No. 2, in which is also recorded the direction and force of the wind, the barometer reading, and the temperature of the air and water. The temperature of the water was taken 5 feet below the surface. The material found in the stomachs of seals has been labeled with reference to the noon position.

In the afternoon we passed numerous patches of seaweed and kelp. In a few instances seals were seen with their heads and flippers thrust up through this floating material. Occasionally they would dive and swim a short distance, soon returning to the surface, however, rolling over and over in the tangled seaweed, but sometimes stopping in their play on the alert for danger. When on sealing ground, hunters always carefully inspect floating seaweed, and, as a rule, if there are seals about, they are almost sure of finding one or more in each large patch. Late in the afternoon we passed close to such a patch, covering a considerable area, in which 6 seals were playing. They paid no attention to the vessel, although within 100 yards of them. A hunter with a shotgun could have captured 2 or 3 of the number, and an Indian with a spear would have secured at least 2.

At 5 p. m. the canoes returned with a catch of 42 seals. Three of the males were about 5 years old, all the others of both sexes being from 2 to 4 years old. Their stomachs were nearly all empty, a few containing some material, which, however, was too much decomposed to be identified. The hunters reported seeing but few seals asleep, and these appeared uneasy. Most of those observed awake were finning. No great body of seals had been noticed, and in such pleasant weather, if there had been many on the ground, 18 canoes and 2 boats could have picked up 100 or more. This number of boats, traveling, as they do, in a path from 10 to 15 miles wide, must necessarily see nearly every seal within that belt. The few seals seen traveling to-day were going toward the northwest.

The chief of the tribe reported hearing the discharge of firearms a short distance to windward of his canoe, but he could not tell to what vessel the boat belonged.

The next day, August 2, the boats were lowered at 7 a. m. The weather bid fair for a successful day's hunt, the wind being north-northwest and light, and the sea smooth. In the early part of the forenoon we jogged close to 3 seals playing. Frequently they would roll



CANADIAN SEALING SCHOONER DORA SIEWERD, BERING SEA.

CANADIAN SEALING SCHOONER KATHERINE.
(Formerly called Black Diamond.)

over several times, stop suddenly to scratch themselves, and stand upon their heads with their hind flippers about 2 feet out of water. They repeatedly performed this operation. When quite near them one of the seals lifted its head up, but the sight of the vessel caused no alarm. Having no boat to lower or spear to throw, a loud noise was made by shouting and beating upon a tin can. This did not have the effect of frightening them, but a light thump on the rail of the vessel caused them to dive instantly, and when next seen they were about 200 yards away. Pausing to look at the object which had frightened them, they then swam rapidly away in an easterly direction.

From the above it would appear that seals are ordinarily but little frightened by the presence of vessels, provided they are to leeward of them. Had we been on the windward side the seals would have taken alarm almost instantly, and would either have dived or swam rapidly away.

At 1 p. m. a heavy fog bank appeared in the northwest, and shortly afterwards the canoes and one boat returned. The other boat had evidently gone astray, but as the weather was smooth no great anxiety was entertained for her safety. Forty-five seals were brought on board, 26 being males and 19 females. All the females except 2 were with milk. Their stomachs were mostly empty.

Through the night the weather continued foggy. Early the next morning, August 3, a sharp lookout was kept for the missing boat, and also for seals. No attempt had been made to lower the canoes although the sea was comparatively smooth. The light fog which hung over the water, in connection with the fact of the missing boat, caused the Indians to hang back. At 7 a. m. a sleeping seal was observed under our lee close aboard, but not in a position to detect us by the sense of smell. A canoe was soon launched and started in pursuit, but the short, choppy sea made it somewhat difficult to capture it. In calm weather, or at times when there is only a light wind stirring, a canoe in approaching a seal is generally paddled directly from the leeward, but in a choppy sea, such as prevailed on this occasion, an Indian always approaches side to the wind, which brings the canoe in the trough of the sea and prevents it from making any noise that would disturb the "sleeper."

About noon the missing boat returned, bringing the skins of 2 seals, 1 male and 1 female.

At 1 p. m. another sleeping seal was observed close under our lee. In ninety-nine cases out of a hundred a sleeping seal will awaken when a vessel is close to it to windward, but not so with this individual, for it slept on wholly unconscious of danger, and was easily captured. At this time the weather showed signs of clearing, and soon afterwards the canoes were lowered. The vessel continued jogging to the westward under sealing canvas. One vessel was in sight. Three hours later the canoes began to return, the wind having increased in force, accompanied by a choppy sea, which prevented seals from sleeping. They were reported scarce, and the few taken bore out this statement. The day's hunt amounted to only 13 skins, 6 males and 7 females. Four of the females were with milk. Two of the males were quite large, about 5 years of age or over, the others from 3 to 4 years. Very few seals had been observed from the canoes, and those noticed awake were traveling to the southwest.

In the morning of August 4 the weather was foggy and the wind northwest and moderate. White hunters would not have hesitated about going out in this kind of weather, but the Indians indulged in

considerable unnecessary talk and paid no attention to a few scattering sleeping seals that were observed among patches of seaweed. It was only when an occasional glimpse of the sky was seen through the clouds and fog, and indications of good weather were plainly visible, that the Indians showed a disposition to hunt. At 10 o'clock all the boats went out. At the time of lowering two other sealing vessels were in sight. During the absence of the canoes no seals were observed from the vessel, although floating seaweed was plentiful.

The canoes returned early in the afternoon, on account of a heavy fog bank which suddenly shut down. Only 16 seals had been taken, 8 males and 8 females. Their stomachs were entirely empty, which would seem to indicate a scarcity of surface fish in this locality. One of the hunters spoke the schooner *Annie C. Moore*, which reported having taken 65 seals, a comparatively poor catch, considering that the weather had been fairly good.

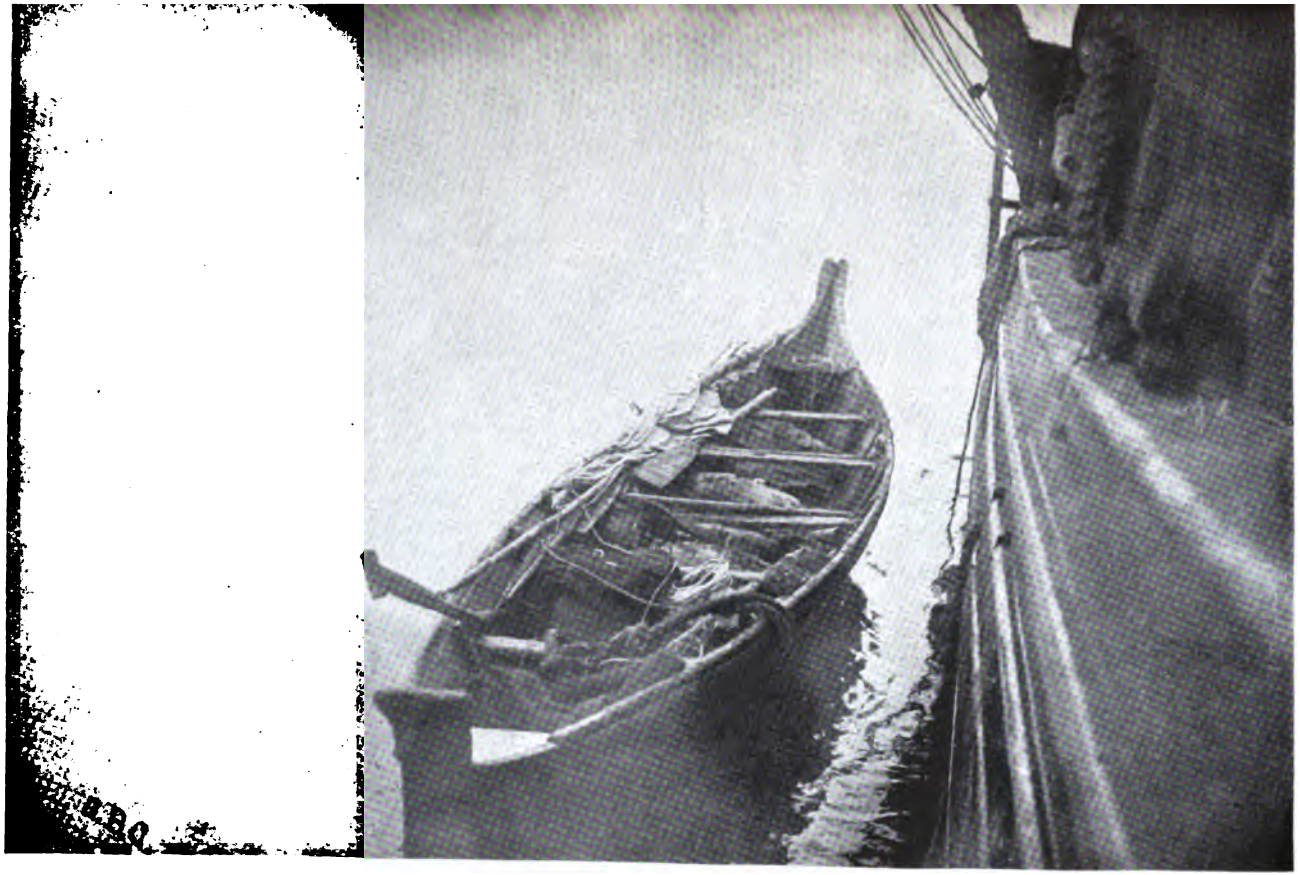
The following day (August 5) the weather was not suitable for sealing, owing to fog and mist most of the time. The wind was from the west-southwest to east-southeast, gradually increasing from a gentle to a fresh breeze, accompanied by a sea sufficiently choppy to prevent seals from sleeping. One "sleeper," however, was observed from the vessel and captured.

On stormy days a lookout is kept by the hunters, and the one who first sees a seal is entitled to stand in the bow of the canoe as spearsman. At such times three men go in a canoe, the weather usually being too rough for one man to manage it. No selection of canoe is made, the most handy one being used, and also the first spear that can be gotten hold of.

In the afternoon we stood to the east-southeast 18 miles, and during the night to the south by west 17 miles, sighting Unalaska Island on the morning of the 6th. The weather was stormy and blowing a moderate gale from southeast, with falling barometer. The noon observation placed us in latitude 55° 01′ north, longitude 168° 07′ west, which showed that we had been in a strong southerly current for the past twenty-four hours. Later in the day we ran 19 miles on a northwest course and hove to on the port tack under a two-reefed foresail and fore-staysail and trysail. In the evening we passed close to the schooner *San Jose*. During the night the wind hauled to the southwest and decreased in force to a very fresh breeze. At times during the following day the sea was very rough, not wholly due to the wind, but caused by a strong current running to the southward. At noon the fog and clouds cleared enough to enable us to get an observation—latitude 54° 56′ north, longitude 167° 27′ west. In the afternoon we stood to the northward at a rate sufficient to offset the effect of the current. Late in the day we spoke the schooner *Walter L. Rich*, which had taken only 65 seals. She had been cruising to the westward of our present position, near the 60-mile zone, and while in that region had seen but few seals.

Toward evening two young seals played about the vessel for some time. They were enticed quite near by whistling, but not close enough to spear. It is only rarely that seals are speared from the deck of a vessel. The young will often approach very near and play about, sometimes for an hour or more, but keeping out of reach. Occasionally, however, their curiosity overcomes their customary prudence, and at such times they are generally captured.

In the morning of August 8 there were indications of clearing weather, with rising barometer and an occasional clear spot in the sky. A dozen



SEALING CANOE WITH OUTFIT AND CATCH, DORA SIEWERD.

or more seals, in bands of three and four, were noticed, causing considerable commotion among the Indians. A week of the sealing season had already passed, and only a few seals had been captured, in consequence of which the Indians were becoming restless. At 8 a. m., wore ship and shook the reef out of the foresail, but in a short time the fog again settled down, and remained so for the remainder of the day.

In the afternoon we saw quite a large number of seals, more than at any time since entering the sea. They were not moving in any particular direction. Orcas or killer whales were plentiful, and kept close to the seals, but they did not have the effect of driving them from the ground. The sealers claim that the orcas destroy large numbers of seals annually, especially in and about the numerous passes through the Aleutian Islands and off the coast of Japan. Many hunters say that when out in their boats it is not an unfrequent occurrence to see orcas devour seals. One hunter on board of the *Siewerd* informed me that on two occasions, off the Japan coast, orcas attempted to take the seals that he had shot. During the afternoon we saw five other sealing vessels.

On August 9 the canoes were put over for the first time in five days. The white hunters made a start at 9 a. m., the weather having moderated, and being prompted so to do by the sight of a sleeping seal. The Indian hunters held back for a time, but several other seals being observed, the remaining canoes were lowered. During most of the time while the hunters were absent, numerous birds and whales and several porpoises were observed about the vessel. Early in the afternoon the wind began to increase in force and the canoes to return. By 4 o'clock they were all on board, having secured 20 seals, of which 13 were males and 7 females. The stomachs were nearly all empty, a piece of squid being taken from one and a few fish bones from another. One of the females had lost a hind flipper, and shot were found in two of the skins. One of the seals represented by these skins had been recently wounded, the other probably some time early in the spring, the shot being found encysted. All of the females were in milk; the males were all young bachelors.

Two vessels, the *F. M. Smith* and *Saucy Lass*, were in sight at the time the canoes returned. The captain of the former came on board and reported having taken 105 skins. He also said that the schooner *Triumph* had obtained 283; *Maud S.*, 240; *C. D. Rand*, 100, and the *Saucy Lass* between 60 and 70.

On the following morning (August 10) the weather was cloudy and cool. At 7 o'clock the canoes and boats started out; at the time of their going the sea was long and rolling, and the temperature of the water 2 degrees below that of the air. When the air is a great deal colder than the water, experienced hunters do not, as a rule, expect to find many sleeping seals. They state, however, that there are exceptions to this rule, but in most cases extra cold air makes them restless and very difficult to approach within spearing distance; but with shotguns they may, when in this condition, be killed with comparative ease.

In the middle of the forenoon two vessels were sighted. Only one seal was noticed from the vessel. This individual was "moochiug," a term used by the hunters to indicate swimming at the surface of the water with only a very small portion of the body exposed, occasionally thrusting the head out far enough to breathe. Seals frequently swim this way on raw, cold days, when they may readily be shot with guns, but are not easily approached with spears.

At 2 p. m. the Indians began to return, much earlier than they should

have done, having lost patience and become discouraged. They lack the persistence and judgment of the white hunters, and will give up the chase on the slightest pretext. The latter, on the contrary, will remain out as long as a chance remains of adding another skin to their catch. One hunter, however, had secured 14 seals, the largest catch of any one canoe since entering the sea. The total number of seals in the day's catch was 73, 18 being males, and 55 females. Their stomachs, like those previously examined, contained but little food; only a few pieces of fish and fish bones were found. In one of the canoes 3 female seals had been skinned; of those brought on board 3 were without milk. When asked if the seals skinned in the canoe were in milk, the Indians said they had not noticed. If the condition of the seals had been observed the same answer would have been given, for as soon as these Indians learn that certain information is wanted they are very reticent, and but little dependence can be placed in what they do say. Seemingly they have been taught to look with suspicion on every person in search of sealing data.

The canoes that went to the northwest of the vessel were more successful than those that went in other directions, and the one that brought in the 14 seals hunted about 6 miles to the northwest of all the other canoes in that locality. A great many traveling seals were observed, all bound to the northward. Nearly all information concerning the direction in which seals were traveling was obtained from the white hunters. Indians, as a rule, pay but little attention to traveling seals, generally attempting to capture only those that are asleep, but sometimes they will endeavor to spear them when rolling and finning.

In two of the seals taken shot were found, the wounds being comparatively fresh—not more than a week old.

On August 11 the canoes and boats went out at 5 o'clock, light wind and cloudy weather prevailing all day. In the afternoon sleeping seals, two and three in a bunch, were frequently observed from the vessel. Whales were plentiful from sunrise until dark. The smoke of a revenue cutter could be noticed to the southwest all the morning, the sight of which caused our canoes to hover much nearer the vessel than usual, the Indians having a dread of all Government vessels. At 10 a. m. a canoe belonging to the schooner *Triumph* came alongside with 5 seals. Our canoes began to return at 5.30 p. m. and continued to come in until 7 o'clock, when the last one arrived. The largest catch was 10 skins and one canoe obtained nothing. Sleeping seals were reported in small bunches from 1 to 2 miles apart. The hunters who happened to be near these bunches did fairly well, but a few miles to the southwest only few seals were found. Traveling seals were also plentiful among the bunches. Considering the fine weather prevailing and the number of seals observed from the vessel the catch was comparatively small, only 89 having been taken—10 males and 79 females. Sixty-five of this number were examined. The stomachs in 49 were empty, 13 contained liquid matter, and 7 material which it would be possible to identify; the latter was preserved. A large number of canoes hunting on the same ground tends to destroy the chances of a good catch by any of them. Canoes from other vessels were in close proximity to ours and none of them did well. This day's catch was made 12 miles north and 9 miles west from that of the day before.

On August 12 the hunters made an early start, the weather being cloudy and cool, the wind from the westward and light; sea smooth; temperature of air and water the same. Later in the forenoon a heavy

SKINNING SEALS, DORA SIEWERD.

fog bank threatened to envelop us, and shortly after noon it came in thick, causing all the canoes to return, having obtained only 15 seals.

On August 13 the weather was unsuitable for sealing, being cloudy and threatening; the wind fresh from the southwest and west-southwest. In the morning we were in company with the schooners *Triumph* and *Sapphire*, of Victoria, the former having taken 500 skins and the latter 450 skins. Captain Siewerd and the writer went on board of the *Sapphire*. It had been noticed that the water about us was very dark in color, much darker than usual, and it had also been observed that in localities where we had taken the most seals the water had been the most discolored. Captain Siewerd had on more than one occasion noticed that seals frequent water of this character in considerable numbers, and had noted the fact in his log. Captain Cox, of the *Triumph*, stated that when in Bering Sea last year he got most of his catch in this locality, namely, latitude 54° 56′ north, longitude 168° 15′ west. He found seals at the commencement of the voyage in water very much discolored, and he endeavored to keep in such water as much as possible. This experiment resulted in his averaging 126 seals for each time the canoes were lowered during the month of August, 1894. On the strength of meeting with such good success, he has been cruising this season on the same ground, and is now more convinced than ever that seal life is more abundant in discolored water than in clear water. Captain Cox attributed the poor catch of seals on August 11 to the great number of canoes roaming over a comparatively small area. On the day mentioned the *Sapphire* took only 68 seals and the *Triumph* 73. A few days before a large bull seal was captured by the *Sapphire* with two spears embedded in its body.

On the forenoon of the next day (August 14) the weather did not bid fair for sealing, the sea being choppy and the wind fresh from the west-southwest. No seal life was observed until the middle of the day, when one seal was noticed asleep not far from the vessel, and so soundly that the flapping of the canvas did not disturb it. It was captured. Its stomach was empty.

At 12.15 p. m. the weather began to show signs of moderating, and soon afterwards the canoes were lowered in latitude 55° 3′ north, longitude 167° 45′ west, where a number of seals were observed playing. The good weather was of short duration, however, the canoes returning by 3.15 p. m., a heavy fog having settled over the water. The white hunters did not come in until nearly dark, thus showing the difference between the two classes. The fog lifted in about an hour after the Indians returned, but they could not be induced to go out again. In several instances where Indians have become discouraged and wanted to return home they have, in order to accomplish their purpose, broken their spears and smashed their canoes, thereby breaking up the voyage. Previous to about two years ago there was no law in British Columbia regulating the conduct of Indian hunters on sealing vessels, and the result was that every possible advantage was taken of the situation. Under the law recently passed Indians are now held accountable as much as white men for the success of the voyage.

The boats containing the white hunters brought back 4 seals, making the total number for the day 30, of which 14 were males and 16 females. The females were all adults, and with milk; the males were small, from 3 to 4 years old. Only three stomachs contained food. In one young male's stomach was found a number of squid beaks; in the stomach of

a female, a piece of squid; and in another, material resembling partly digested crustaceans.

The water through which we had passed was considerably discolored, and the few seals taken were captured where crustaceans were the most abundant. In the evening large flocks of guillemots, petrels, and auks were noticed, apparently feeding. No small fish being noticed, it was supposed that the birds were feeding on minute surface life.

On August 15 the weather was very pleasant, only light airs disturbing the water, and a finer day for sealing could not be desired. By 5 a. m. all the boats had left the vessel, not returning until about the same hour in the evening. A considerable number of sleeping and traveling seals were in sight most of the day. Those that were traveling were not, so far as was observed, going in any one direction. Sometimes a bunch of two or three would suddenly start toward the southeast, swim rapidly for a few minutes, stop, and go in an opposite direction. Frequently four or five would make a complete circle around the vessel at a distance of a quarter of a mile. In a few instances young seals came and played about, diving and swimming, etc.

An abundance of seals was seen from the vessel, but as they occur in bands more or less widely separated, it was not certain that the canoes and small boats would get among them. All through the day whales and birds were numerous and the water was very much discolored, signs now looked upon as favorable indications for a successful day's hunt.

At 4 p. m. the boats began to return and by 6 o'clock they had all arrived except one. The day proved fairly successful, 99 seals having been taken, 31 males and 68 females. Nine was the highest catch and 1 the lowest by a single boat or canoe. They were by far the largest seals yet obtained, only 8 of the females being under 3 years of age. All of the stomachs were examined, but only 10 of the number contained food, some a small amount of liquid matter, and others Alaskan pollock and what appeared to be pieces of cod.

In the evening the wind began to freshen from the east-southeast and later the stars were visible for the first time since we had entered the sea. All through the night the wind was fresh, causing a choppy sea by morning. During this time we had worked 20 miles to the westward. A sharp lookout had been kept for the missing canoe and a torchlight was displayed at frequent intervals.

No boats were lowered during the day, the conditions being unfavorable. The wind did not blow hard at any time, but was strong enough to prevent the seals from sleeping. In the afternoon we spoke the schooner *Louis Olsen*, which had taken 30 seals the day before. At 4 p. m. we attempted to sound in latitude 55° 15′ north, longitude 168° west, but got no bottom, although we were close to the edge of the bank. Just before dark a young seal came alongside and began to play about the vessel, first on one side and then on the other, affording great amusement to the Indians. After a good many wild throws it was captured and proved to be a female.

On August 17 a fairly good day's work was accomplished. Light airs prevailed from southeast and east-southeast, with frequent calms. Light fog and showers occurred several times during the day, but they were not heavy enough to prevent seals from sleeping. Early in the morning a young seal came alongside and was taken. At 6 a. m. all the canoes were lowered; after their departure no seals were seen from the vessel. Early in the afternoon a canoe belonging to the schooner *San Jose* boarded us and reported that vessel as having 530 skins. At 7.30

p. m. our hunters returned bringing 85 seals, 28 males and 57 females. All of the females were exceptionally large; the males were all young bachelors, from 4 to 5 years old. A careful examination was made of the stomachs, only 6 of which contained food. In one stomach was found small pieces of squid, in the others small bones and pieces of fish. The catch to-day was not very evenly distributed among the boats, the highest bringing in 14, and four 1 each.

On August 18 the wind was from the southeast by south to south-southwest, decreasing from a stiff to a gentle breeze. The sea was choppy in the morning, and a long rolling swell prevailed in the afternoon. The weather was foggy and variable, all of which conditions were unfavorable for sealing. At noon there were signs of clearing up, and shortly after that the canoes were lowered in latitude 55° 51′ north, longitude 168° 32′ west. The Indians had no great desire to go out, and probably would not have ventured had it not been that the schooner *Willard Ainsworth* was a short distance away and had already lowered her boats. Five other vessels were also in sight. At the end of three hours the hunters returned, having secured only 2 seals—1 male and 1 female. Very few seals had been seen, the only "sleepers" being the 2 that were captured. The others were traveling in various directions.

The next day, August 19, rain prevented seals from sleeping. At 8 a. m. the canoes were lowered, but the weather did not give promise of satisfactory results, even in case seals were plentiful. The canoes remained out only two hours, returning with 2 males and 2 females. Their stomachs, like those of yesterday, were empty. The mate of our vessel while absent had boarded the schooner *Florence M. Smith*, and learned that she had taken 546 seals. On the 15th she secured 160 seals; her position on that day having been not far from where we hunted—latitude 55° 08′ north, longitude 167° 40′ west. He was also told that our canoe which went astray on the 15th had taken 12 seals, making our total catch for that day 111 skins.

Shortly after the boats returned a sleeping seal was observed close aboard, and although it was raining hard it slept on, wholly unmindful of the weather. Such an occurrence is very unusual, for it is seldom that seals rest well while it is raining, unless they have become thoroughly exhausted by a long spell of rough weather. Later in the afternoon a few traveling seals were seen; they frequently changed their course, but the general direction of their movements was northwesterly. We had been in discolored water all day, but late in the afternoon we suddenly jogged out of it into clear water. The noon observation, latitude 54° 56′ north, longitude 168° west, indicated that we were in a strong south-southwest current.

On August 20 a very satisfactory catch was made, the wind being a light breeze from the westward, and the sea smooth. A light fog hung low over the water at times, occasionally clearing for the space of half to three-quarters of an hour, which enabled the hunters to keep track of the vessel. The boats were lowered at 4.30 a. m., at which time seven other sealing vessels were in sight. During the afternoon we frequently saw canoes lower their sails, indicating that they were among seals. We could not tell to which vessel they belonged, as both boats and vessels were well mixed up together.

One canoe returned early in the afternoon with 11 skins, and by 7 p. m. 111 seals had been landed on deck, 44 being males and 67 females. Sixty-two of the latter were nursing females. All the males were from 4 to 5 years old except 2, which were about 6 years old. Squid and

pollock made up the bulk of the food found in their stomachs, a few being gorged with it. In proportion to the number of seals taken, however, only a few contained food. The squid and pollock were in a comparatively fresh state. From the stomach of one male an eelpout was taken.

It is a fact worth mentioning that all the seals taken by us to-day were found in "streaks" of discolored water from 1 to 3 miles wide, and extending nearly in a north and south direction. The character of the water could hardly be accounted for by our close proximity to the bank, for if such had been the case it would have been the same all over. It had previously been noticed that these discolored bands ran parallel to each other in northeast and southwest or northwest and southeast directions. Water in this condition would not ordinarily be noticed from the deck of a steamer unless on the lookout for it. The mate reported seeing an abundance of Alaskan pollock jumping and many traveling seals in pursuit of them.

Most of the seals taken to-day were captured asleep, only four having been awake when speared. The latter were "mooching."

In and about the neck of a male seal were found several shot wounds, with blood oozing from them. Another seal had a bullet hole close to its right forward flipper.

On the morning of August 21 there was every indication of favorable sealing weather. The sky was dark and cloudy, but the wind was light and the sea smooth. The Indians went out at an early hour. Not long after their departure we spoke the schooner *Agnes McDonald*, which had picked up our hunters who went astray on the 15th. The *McDonald* reported having 900 skins. Her white and Indian hunters were equally divided as to numbers, and the former had taken between 40 and 50 more seals than the latter.

The Indians of the Northwest Coast have always been of the opinion that white men could never become expert in the use of the spear, and this spring they ridiculed the idea when told that white hunters were to be employed on a few vessels. If white men will only exercise the same patience when hunting with spears as with shotguns, they will soon become as proficient in its use as the Indians. Such a result would be greatly to the advantage of captains and vessel owners, as the Indians have had the opportunity heretofore of dictating their own terms.

At noon a heavy fog settled down, causing the boats to return; but fairly good results were obtained, 69 seals being taken—12 males and 57 females. The males were small, ranging in age from 2 to 4 years. Forty-eight of the females were exceptionally large, 4 medium in size, and 2 about 2 years old. The first mentioned were all with milk, the others without. An examination of their stomachs showed that they had been feeding largely on squid, Alaskan pollock, and salmon, a considerable amount of which could not have been in their stomachs more than a short time, as it was very fresh in appearance.

The mate reported seeing, while hunting, a small school of squid, but observed no seals among them. The other white hunters noticed numerous small fish jumping, and frequently seals in pursuit of them. The fish could not be approached near enough to determine their species.

At the time of lowering the canoes a dead whale was seen to windward, about 1½ miles distant. We kept in sight of it all day. In the evening, after the work of skinning had been finished, a party of Indians went to it and brought back a quantity of blubber. The head

had been cut off. Numerous birds were hovering over the carcass and many were feeding on it, but no seals were noticed near at hand.

On August 22 the boats were lowered at an early hour, the weather being similar to that of the day before, with light and gentle winds from the westward. At the time of lowering 4 other vessels were in sight, directly to windward. This, of course, placed our boats in a bad position, as a windward berth is superior to all others. When following in the wake of other boats only poor results are to be expected, as the windward hunters disturb the sleeping seals.

At noon a hunter on the *Agnes McDonald*, who came on board, reported his vessel as having 920 skins, the highest catch for one day having been 253, and the next highest 180. The 253 seals were taken on the 15th, and not far from our position on that date. The hunter informed the writer that on the day before he speared a large male just as it came to the surface with a red rockfish in its mouth. The fish was alive, and as it was not at all mutilated it was taken on board and cooked. He also stated that he speared a sleeping seal close to the floating carcass of a dead one. Indians claim that seals will not remain where carcasses are floating, but this is not always true, for on several occasions we had noticed seals among such objects.

At 4 p. m. a heavy fog set in, putting an end to further hunting for the day. Forty-four seals composed the catch, 12 being males and 32 females. The males were all young bachelors and all the females were in milk except 2. The stomachs of 33 were empty, 11 contained pieces of squid, salmon, pollock, and numerous fish bones.

In the evening we shaped our course to north-northeast, and during the night ran 25 miles in order to get near our position of the 21st. In the morning the weather was unfit for sealing, and as the day advanced the chances grew less favorable.

At 10 a. m. we sounded in 90 fathoms, the first time we had been on soundings since leaving Unalaska. At 4 p. m. our longitude by observation was 168° 05′ west, latitude at noon 55° 28′ north, near where the 69 seals had been taken on the 21st. In the evening we were boarded by officers from the revenue cutter *Rush*.

On August 24 the weather was too variable to entertain hopes of success at hunting. A heavy, wet fog in the morning, combined with a moderate breeze and choppy sea, prevented an early start. At 7.30 a. m. a slight clearing caused the canoes to be lowered. The signal gun was kept firing at short intervals until 10 o'clock, when the fog entirely cleared. The spell of good weather was of short duration, however, for at noon a squall from the north brought all the hunters back. In the short time that the boats were out 21 seals were taken. This was encouraging, for it indicated that we were on good sealing ground. Most of the seals captured were restless, few being sound asleep, or, in sealers' parlance, they did not "lay up" well. The mate came across two seals sleeping side by side, one of which was speared. Instead of the other one becoming alarmed and diving, as is usually the case, it remained near its struggling companion until the latter was hauled into the boat. The food found in the stomachs of the seals to-day did not vary much from that recorded in those previously examined in this locality, namely, squid, squid beaks, salmon, pollock, and fishbones. The males were comparatively large; the females were all adults and with milk.

During the night we stood to the westward 50 miles, and then hove to.

The weather on August 25 prevented sealing, being cold with a fresh breeze from north to north by east, accompanied by a rough sea. The

vessel was hove to under sealing canvass. Excellent observations were taken, it being the first time the sun had remained out for any length of time since the cruise began. All day birds had been numerous, and occasionally a sleeping seal was observed; sometimes two and three were seen together. This, combined with the great number of birds, assured us that we were on good ground. We frequently wore ship in order to hold our position. In the evening rain squalls passed over.

On the morning of August 26, the wind and sea having subsided, the canoes were lowered in latitude 55° 15′ north, longitude 170° 53′ west. The weather was pleasant but cool, the air being 2 degrees colder than the water. This difference, according to the theory of many sealers, would cause seals to "lay low," or, to put it in clearer terms, they would sleep with less of their bodies exposed.

In view of the number of seals observed before the boats went out, a large catch was anticipated, nor were we disappointed, for in the evening when the last canoe had returned there were 157 seals on deck.

The opinions advanced to the effect that seals are more plentiful where birds occur seem to be entitled to consideration, and it is very probable that had we not heeded their presence yesterday, and had sailed by them, our catch to-day would not have been large. Our captain had become thoroughly convinced of the value of these signs after years of experience.

The canoes were all back at 6.30 p. m., having been absent over twelve hours. In the forenoon seals were inclined to be restless, but occasional warm rays of sun in the afternoon caused them to sleep soundly. It was noticed that a large portion of to-day's catch was speared either in the breast or back, close to the forward flippers, indicating that the seals slept soundly, with their bodies largely exposed, which gave the hunters an opportunity to strike the most vital part. Aside from the favorable condition of the weather, the absence of other vessels from the ground materially aided in increasing the day's catch.

In only 12 stomachs was food found which could be identified, the others being empty. In the full stomachs were observed squid, pollock, and one piece of salmon. Fifty of the 62 males were 4 to 5 years old, the other 12 about 3 years old. Ninety-two of the females were adults, and 2 under 3 years of age.

All through the night of the 26th and the morning of the 27th the weather was calm, or nearly so. At daybreak a light fog hung over the water; in the middle of the day it cleared away. On the strength of yesterday's success the hunters went out at an early hour. From the vessel scattering seals were observed all through the day. The water was very much discolored, and whales and porpoises were abundant, but there was a marked scarcity of birds as compared with yesterday. At noon a good observation of the sun was taken, which placed us in latitude 55° 10′ north, longitude 170° 47′ west.

At 4 p. m. the hunters began to return, and at 7.30 o'clock the last one had arrived. The catch nearly equaled that of yesterday, amounting to 146 seals, 68 being males and 78 females. It will be seen by this that there are times when the sexes are nearly equally distributed, but as a rule the majority of seals taken at sea are females. Sixty of the 146 seals were opened; food was taken from 6 males and 14 females, consisting of squid, pollock, and a small quantity of fishbones. The stomachs of the females opened contained a greater quantity of food than the males. Thus far, in the examination of stomachs, it had been noticed that those of the males contained much less material than the females.

Most of the males caught to-day were very young, 3 and 4 years old;

the females were much larger. Seventy-four of the latter were in milk; those that were not were from 2 to 3 years old.

On the morning of August 28 the weather looked favorable for a repetition of the previous day's work. The hunters were well clear of the vessel at 5.30 o'clock, at which time another vessel and the smoke of a steamer could be seen low on the horizon. In the middle of the day a canoe belonging to the schooner *James G. Swan* came alongside and reported that vessel as having 860 skins. During the latter part of the day the weather became threatening. The barometer had been falling rapidly since noon, the wind had shifted from southwest to southeast, and no seals had been observed from the vessel. At 6 p. m. the hunters returned, bringing 57 seals. Two of the males were large, the others were all small.

As soon as the canoes and boats were hoisted in and secured for the night, a single reef was put in the foresail and a reefed trysail set, and preparations made for stormy weather. At dark the wind began to increase in force, and by midnight it was blowing a moderate gale, which continued until the following noon. Occasional heavy rain squalls passed over, which kept the sea down somewhat. In the evening two sleeping seals were noticed, which was unusual under the circumstances.

In the morning of August 30 the wind had again increased to a moderate gale, and since midnight had changed 2 points to the southward. The sea was very rough; weather clear and sunny.

At 10 a. m. wore ship and lay to on the starboard under close-reefed sails. Both in the forenoon and afternoon we saw scattering seals. They were seemingly not bound in any particular direction, and most of them were playing. One was observed asleep.

We had been in comparatively clear water all day, but late in the afternoon suddenly jogged into discolored water. At 5.30 p. m. the jib was set, and we stood on a southeast by south course, so as to give the 60-mile limit a wide berth, the wind and sea for the past twenty-four hours having carried us toward it. We worked to the south and west all night. In the morning of August 31 the wind and sea had gone down considerably, and one vessel was in sight. At noon we were in latitude 55° 11′ north; longitude 170° 05′ west. We spoke the schooner *Enterprise*, of Victoria, with 1,387 skins on board. She reported the schooner *Libbie*, with 1,040 skins, and the *Carlotta Cox*, with 600. The last-named vessel carried only 6 boats, and white hunters, which speaks well in their favor as seal hunters with spears.

Shortly after meridian we passed several sleeping seals, but the condition of the weather prevented the hunters from going out. About two hours later several more were seen, and at 4 p. m. we came across a bunch of "sleepers." At this time the weather showed signs of clearing, and 7 canoes were lowered, but they were out only a short time when the weather again became threatening. Eleven seals was the result of this short trial, 5 being males and 6 females. They were all very small and only one contained food. Four of the females were without milk.

Through the day we had been in markedly discolored water, and the other indications were favorable to the presence of a considerable body of seals on this ground, which turned out to be the fact, as proved by the results of the hunting on the following day.

The wind had been moderate all through the night, and in the morning of September 1 a light air was moving from the southwest, the sea being smooth. The sky was cloudy and the air cool, but as the day

advanced it grew warmer. Whales could be heard blowing through the night, and at daylight a number were seen close by; also immense flocks of birds. At 5.30 a. m. the hunters started under very favorable conditions, the sea being smooth and nothing in the atmosphere indicative of a change. The wind being very light, the vessel remained in one position most of the day. Numerous seals were observed, both awake and asleep. The former were moving only slowly, seldom going over 100 yards, and spending most of the time in finning, rolling, and scratching themselves. In the afternoon we were boarded by the revenue cutter *Rush*. At 5.30 p. m. the canoes began to return, each one bringing a good catch, the largest amounting to 25 seals, the smallest to 11. The total catch was 336. This was a phenomenal day's work, affording the greatest number of seals ever taken in Bering Sea in one day, except that the schooner *Sapphire* in 1894 captured about 400 in the same length of time.

There were 120 males and 216 females. The stomachs of those opened showed a remarkable scarcity of food. The material from 8 males and 10 females was all that was in suitable condition to identify, and consisted chiefly of squid, although pollock and what looked like cod made up a portion of the food preserved. Taking into consideration the amount of surface life observed from day to day, it has appeared remarkable that so few seals should have food in their stomachs.

To-day both Indian and white hunters reported numerous seals, finning, rolling, and asleep. In the early part of the day they were inclined to be restless, but in the afternoon the warm sun caused them to sleep soundly, and so plentiful were they that sometimes it was a hard matter to decide which one to spear first. Of course, where seals sleep so near together, those in close proximity to the one speared are liable to be disturbed, but there were enough others in the near vicinity to keep the hunters busy without paying much attention to the disturbed ones. They were reported as lying about like logs, as far as the eye could reach. The hunters claimed that in all their experience they had never before beheld anything like the sight presented. Small schools of squid, pollock, and other fish were plentiful. One of the white hunters reported seeing several Atka mackerel, and from the description given it is possible he was correct. The day had been a perfect one for sealing, and no other vessels were on the ground.

During the night we jogged to the southwest 14 miles. In the morning of September 2 the hunters were out at an early hour, weather being clear and pleasant, the sea smooth, and the wind light from northeast by north. At 10 a. m. two of the canoes returned, the hunters claiming that the air was too raw and chilly for seals to sleep well, there being 2 degrees difference between the air and water. Only a few scattering seals had been seen, and they were rolling and finning. It was not long before all the canoes returned, bringing altogether 10 seals—6 males and 4 females. Three of the latter were nursing females. Their stomachs were comparatively empty, what little food they contained being of the same character as on the previous day, namely, squid.

At 4 p. m. an observation of the sun placed us in latitude 55° 22′ north, longitude 170° 36′ west. At this time we saw several patches of sea weed in which seals were finning and playing. We spoke the schooner *Enterprise* and learned that she had captured 236 seals on the 1st, about 12 miles south of our position. We were also informed that a number of other vessels had been very successful, which would indicate that the seals covered a considerable area on that day and were not wholly confined to our immediate vicinity.

September 3 was cold and cloudy, the wind being northeast and fresh, the sea short and choppy. A few "mooching" and finning seals were occasionally seen; no travelers were observed. At 5 p. m. we spoke the schooner *Ainoko*, which had taken 750 skins. For the past week she had been cruising in the vicinity of Akutan Pass, but had not found seals abundant enough to remain on that ground. Last season good catches were made there. She was now bound to the westward in search of a large body of seals which had been reported a few days previous by the revenue cutter *Grant*.

We continued to jog to the northward for about 20 miles and then hove to. All the afternoon scattering seals had been observed, most of them in our wake. They would follow the vessel for a half hour at a time, seemingly through curiosity. At times during the night seals could be heard playing around us. In the morning several bunches were noticed close by, a few playing, but the majority going in a northwesterly direction. In the early part of the day the barometer began to fall, the weather became threatening, with the wind east and sea rough. At 10 a. m. wore ship and jogged to the southeast under snug canvas, wind a moderate gale from the east-northeast. From daylight until dark more seal life had been observed from the vessel than at any previous time since entering Bering Sea. Our attention was especially attracted to the character of the water, which had the appearance of being filled with minute surface life. Birds were numerous, and an occasional whale was in sight.

During the next three days stormy weather prevailed, the wind being east-northeast and blowing from a moderate to a strong gale; the sea was heavy most of the time. On the morning of the 7th the wind had subsided to a moderate breeze. During this long spell of boisterous weather seals were frequently observed, some playing and others traveling in a southwesterly direction. Birds were plentiful most of the time. At noon on the 7th we were in latitude 56° 22′ north, longitude 171° 50′ west, and it was quite evident that we had encountered a strong northwesterly current. At 8 p. m. wore ship and stood to the southeast so as to give the 60-mile zone a wide berth. A vessel cruising near this line without getting an observation for several days, and having no means of knowing the direction of the current, is very apt to be from 30 to 40 miles out in her reckoning.

At 6 a. m. on September 8 the hunters were making preparations to lower, the sea being smooth and a light breeze blowing from the eastward; the weather was cloudy. At 10 a. m. the hunt was interrupted by a heavy, damp fog. Ten seals had been obtained—7 males and 3 females. Five of the former were between 4 and 5 years old; the other 2 were very small, about 1 year old; the females were all nursing cows. The stomachs of these seals were nearly all empty. Only a few of the hunters saw seals, and according to appearances there were but few in this locality. Two of the boats rowed and sailed fully 15 miles each without encountering a single one. Fish and other surface life were correspondingly scarce. As our position—latitude 56° 35′ north, longitude 172° 20′ west—placed us very near the bank, the scarcity of seals was surprising.

While a number of the canoes were waiting alongside to be hoisted on board a small seal came up in our wake, apparently attracted by the blasts of the fog horn and remaining unconscious of danger until one of the canoes had closely approached it and the spear had been poised for striking. It was captured.

At 3 p. m. we made all sail and stood to the southeast. Shortly after

this the fog lifted for a short time and an observation of the sun was taken, placing us in latitude 56° 32′ north, longitude 172° 45′ west.

The next morning we had made 50 miles in a southeast direction; the weather was pleasant, the sea smooth, and the sky periodically clear. A few seals were noticed early in the day. At 9 a. m. the presence of 3 seals, supposed to be sleeping, prompted two hunters to launch their canoes, but they dived just as the spears were being thrown. The appearance of seals, however, acted as an incentive for all the canoes to go out, but they soon returned in consequence of fog. Nine seals only were obtained, 4 being males and 5 females. Although fish were reported jumping, nothing was found in the stomachs of these specimens.

In the night we had worked to the east-southeast, and in the morning we were in latitude 55° 50′ north, longitude 171° 49′ west. At 5 a. m. a sleeping seal was speared close to the vessel; its stomach was well filled with food, consisting apparently of Alaskan pollock. At this hour the weather was very foggy and the Indians were not inclined to start. Presently, however, the fog lifted somewhat and several more seals were seen. A signal gun could now be heard, indicating that a sealing vessel was near and that her boats were out. This circumstance stimulated the hunters to action, and in a short time the canoes were hoisted out. As the fog cleared birds, whales, and porpoises could be seen to the northwest, and also flocks of petrel on the water close by. The season being now well advanced, the hunters were expected to take advantage of every opportunity, and, moreover, on the strength of their previous good success, they were quite eager to add a few more skins to the number on board. The weather could no longer be trusted for any length of time, and that proved to be the case on this day. At 11 a. m. the fog became so dense that the captain was as anxious to get the hunters back as they were to return. Seventeen seals composed the catch, 5 being males and 12 females. Eleven of the females were nursing cows, and the males were all young. One canoe obtained 5 of the number, all of which were asleep and separated just far enough so the noise made in capturing one did not disturb the others. A considerable number of "rollers" and "finners" was noticed, but the damp fog seemed to prevent them from sleeping. Had the day been warm it is probable that a good catch would have been secured.

In proportion to the number of seals taken, a greater amount of food was found in their stomachs than on any previous occasion. Squid and pollock mixed with crustaceans composed the greater part of the material identified. Squid beaks were very conspicuous in every stomach in which food was found. As in previous cases the stomachs of the females were much better filled than those of the males.

The second mate while out hunting had boarded the schooner *Triumph*, whose gun had been heard earlier in the day. She reported having 1,800 skins. The day before she took 20 skins 30 miles to the eastward of our present position. For the past few days she had been gradually working to the westward, but only a few scattered seals had been noticed. To-day her hunters brought in 42 skins. Captain C. expressed the opinion that if good weather should prevail for a few days encouraging results would follow, as there was every indication that seals were plentiful on this ground. The elements were against us, however, and for the next four days the weather was rough and boisterous.

On September 11 the wind blew a very fresh breeze, varying in direction from south by east to southwest, accompanied by a rough sea. No seals were seen, but many birds were about. During the

DECK OF THE DORA SIEWERD.

night of the 11th and the morning of the 12th the wind increased in force and hauled to the westward. The sky was filled with heavy clouds, the air was raw and chilly. Occasionally we wore ship to hold our position. Scattering petrels and other sea birds were frequently seen, but only one seal was sighted during the day. At sundown the barometer began to rise. In the evening the sky cleared and the stars came out, but the sea continued heavy and was accompanied by a flying scud.

On September 13 the wind varied in force from a light to a stiff breeze, with changeable weather, rain, mist, fog, and rough sea, occasionally clearing. Birds were plentiful, one of which was seen to dive close to the vessel and bring up a fish about 10 inches long. In the afternoon 3 seals were observed sleeping side by side, the vessel almost running over them before they awoke. They must have been much exhausted from loss of sleep in the recent gale.

In the morning of September 14 the wind had again increased to a moderate gale. The weather was foggy and misty at times, with a heavy, rough, and tumbling sea. Two seals were observed in the forenoon. Near noon we ran into an area of discolored water, in latitude 55° 20′ north, longitude 171° 25′ west, in which were a number of seals. Notwithstanding the very rough condition of the sea and the moderate gale prevailing, several of them were asleep. Their bodies were but little exposed, and it was only when we were quite near them that they could be made out. The gale finally broke, and in the morning of September 15 only a light, variable air was moving. The sea had also gradually gone down with the wind. At 7.30 a. m. several seals were observed and the canoes were lowered. Two sleepers were captured a short distance from the vessel. At 11 a m., however, a heavy fog and mist settled down, accompanied by a cold wind from the northwest, which had the effect of bringing back the hunters, all of whom were on board at 1.30 o'clock, having captured 24 seals, 16 males and 8 females. Pieces of squid were found in the stomachs of some of them. Fourteen of the males were very small, and 2 between 4 and 5 years old. The females were larger, 5 being with milk. The hunters reported seeing a large number of seals rolling and finning.

Numerous birds and a great many whales were in sight all day. At noon we were in latitude 55° 10′ north, longitude 170° 06′ west, which was not far from the position where we had taken 157 seals on August 26 and 146 on August 27. The color of the water varied but little on these dates, the strips of discoloration also running in the same general direction. It would appear as though these bands of discolored water were governed chiefly by the currents, being but little affected by the wind. Late in the day the fog gave way to occasional rain squalls. Birds were exceedingly abundant, and we frequently sighted scattered seals, the most of which were playing. In the evening several hail squalls passed over, after which the sky cleared.

Preparations were made to lower the canoes on the following morning, but the work was interrupted by the sudden breezing up of the wind from the westward. In the afternoon the clear weather suddenly changed to mist and rain, with an occasional squall. Only 2 seals were seen, 1 asleep and the other playing. A canoe was lowered for the "sleeper," but it was lost sight of in the choppy sea. Whales and birds were plentiful all day, and in some places immense flocks of petrel were sitting on the water. They were evidently feeding on small marine organisms, for as soon as we had jogged past they would settle down in the same spot from where they had been frightened.

Early in the evening a sealing vessel passed to windward with her

flag set, indicating that she was homeward bound. The sight of this vessel put the Indians in high glee, for the season was now getting late and they were anxious to go home.

On September 17 the weather was a repetition of that of the previous day. In the early part of the day we saw 9 seals circling around in various directions and occasionally rolling and finning. Observing this number of seals from the vessel with a choppy sea running was a good indication that under better conditions they would be found plentiful. At noon the weather showed signs of moderating, but the Indians could not be induced to venture out on account of a few squally looking clouds low on the horizon. At 2 p. m. two white hunters started out, but after a two hours' hunt they returned empty-handed. Only 4 seals had been seen, 3 finning and 1 asleep. At the time the boat left the vessel the water was comparatively clear, but about 3 miles to the northwest it came into very much discolored water, in which birds were plentiful and a few fish were seen jumping.

Early in the following morning, September 18, the canoes were lowered, the wind being light from the southeast and the sea smooth. The barometer indicated no change, but in a short time the wind began to increase. No seals were observed either by the small boats or from the vessel during the day.

On September 19 the weather was similar to that of the previous day. Four seals were seen, 2 asleep, the others traveling to the north-northeast. The former did not awake until the swash of the water from our bow struck them. In the evening we headed for Unimak Pass. As the season was now late it was thought inadvisable to remain longer in the sea. The condition for the last ten days had convinced the captain that little, if any, more sealing weather could be expected.

The next morning we sighted the schooner *San Jose*, which had made a catch of 600 skins. Her captain came on board and reported that until recently he had been hunting northwest of the Pribilof Islands. In that region seals were abundant, but the weather had been too stormy to operate. On September 13, in latitude 58° 30′ north, longitude 172° 30′ west, several hundred seals had been observed, but the sea was too rough for lowering the boats. In the latter part of August the *San Jose* had hunted near Unimak Pass, but few seals were found there.

At 10 a. m., the wind being light, 8 of the canoes were put over, but at 2 p. m. a dense fog settled down. Ten seals were secured, 4 males and 6 females. They were all small, and their stomachs were empty. On this ground birds were plentiful and one orca was observed. At 2.45 p. m. we continued on our course, and at 6 p. m. Cape Cheerful bore abeam about 15 miles. The next day we were off the northern entrance of Unimak Pass, four other sealers being in sight. In the evening we cleared the southern entrance of the Pass and shaped a course for Cape Flattery. On the morning of October 8 we anchored off Ucleuet, an Indian village situated on the north side of Barclay Sound, Vancouver Island, where most of our Indians belonged. We reached Victoria on October 8, having been twenty days on the passage home.

OBSERVING SEALS.

In sealing weather hunters do not wait until seals have been seen from the vessel before lowering the boats. They start out as early as possible and search for them, as otherwise the catch of the entire fleet would be small. Very often when no seals are observed from the vessel's deck the boats will be among bunches of them, only a mile or two away, and, on the other hand, it sometimes happens that when scattered seals are

CANADIAN SEALING SCHOONER DORA SIEWERD UNDER STORM CANVAS, SHOWING MANNER OF STOWING CANOES.

noticed from the deck the boats may be cruising over barren ground. As a rule, however, the number observed from the vessel is small as compared with the number sighted from the boats. A vessel while jogging will naturally frighten a great many which lie in her path; the flapping of the canvas and the creaking and slatting of the booms arouse the sleepers long before they can be seen, and give them ample time to escape. In the early days of pelagic sealing the boats used to be stationed at different distances and in different directions from the vessel, and would drift, waiting for seals to come near. This method, however, proving unremunerative, it was given up, and the hunters began to cruise, which custom they have continued to follow ever since.

MANNER OF COUNTING THE SEXES.

Considerable controversy has arisen from the accounts rendered by sealing captains regarding the proportion of male and female seals taken in the North Pacific Ocean and Bering Sea. Previous to the time when sealing vessels were required to enter the number of each sex taken in their official logs little thought was given to this question, and it was always claimed that the two sexes occurred in about equal numbers. All sealers knew which sex predominated, but clung to their original story, and there was no one who could controvert their assertions, although there was every reason to doubt them. An order from the United States Treasury Department requiring the catch of all American sealers to be examined on their arrival in port was the means of throwing considerable light on the subject, and the information gained from this source fully established the fact of the great preponderance of females.

It has generally been supposed by most sealers, and the view is still entertained by many, that if it were known that a greater number of females than males were taken it would greatly affect and possibly restrict their privileges when the time came for a readjustment of pelagic regulations. The fact has generally been lost sight of that the condition of the rookeries at the end of five years will have the most weight in deciding that matter.

That pelagic sealers should pay little attention to the sexes of the seals taken was but natural, as they had no object in determining which sex predominated, the thought uppermost in their minds being to capture as many seals as possible.

No check is placed upon the official logs of the Canadian sealers by the custom-house officials at Victoria, who accept such records as authentic. If the skins landed at Victoria were subjected to the same rigid examination as those landed in United States ports, little or no difference would be found in the proportion of each sex represented in the catch by the vessels of the two countries. It seems strange that on several occasions when American and Canadian sealers have hunted on the same ground and in close proximity to each other, the catch of the former has always been composed largely of females and the latter of males. There are days when more males than females are taken, but such times are not frequent. It is only fair, however, to state that a number of both American and Canadian sealing captains have admitted the truth to the writer, and all United States hunters with whom he has conversed admit that the majority of seals captured off Japan and around the Commander Islands are females.

During the season of 1894 the schooner *Louis Olsen* kept an account of the seals taken off the coast of Japan, and it was found that out of 1,600 two-thirds were females. In 1895 the schooner *Brenda* obtained

896 seals on the same coast, fully two-thirds of which were also females, according to the statement of one of her hunters. In nearly every instance where the writer has spoken with hunters on this subject they have admitted that in all waters where the northern seal herd is found, with one exception, females largely predominate. This exception is the Fairweather ground, where, a few years previous to the beginning of the close season now in force, most of the pelagic sealing was carried on during the month of May. On this ground, as recorded by the writer in a previous report, is found a great number of large males, and according to the statement of all sealers and of others it is now quite well established that large breeding males frequent this ground in greater numbers than any other known region.

It may be well to illustrate briefly a few of the conditions under which the record of seals is kept. When seals are brought on board in small numbers it is very easy to identify the sex, but when they arrive in large quantities, a hundred or more, it requires considerable time to examine each one, and sealers have, to them, more important duties to attend to. It often happens that the hunters are forced to return on account of bad weather or an approaching storm, at which times the safety of the canoes and vessel is of more consequence than the determination of the character of the catch. When the boats and canoes are being hoisted in, the officers and men are stationed at either side of the vessel to do this work, as well as to keep the records, and, as is to be expected, in the bustle and excitement a very correct account of the sexes is not given. In many cases the seals are not examined at all. By the time the last canoe is lashed on board the weather is rough and stormy and the hunters are anxious to go below; and if it be dark the seals will be left until morning for skinning. No further examination is made, and, right or wrong, the first account rendered is accepted. The fact of the matter is, that in only a few cases is the sex correctly recorded.

Inaccuracies in this respect also result when the seals are skinned in the boats. Upon arrival at the vessel the skins are at once thrown into the hold without examination, and nobody knows or cares whether they are male or female.

Although United States revenue cutters have the privilege of boarding vessels and overhauling the catch made in Bering Sea, the conditions under which this work is carried on, however zealous the officers may be, render it difficult for the sexes to be separated, and they return to their ship little wiser than when they came.

CONDITIONS OF THE FEMALE SEALS TAKEN BY THE DORA SIEWERD.

Of the 982 female seals secured by this vessel, 882 were opened and examined by the writer. Of this number 839 were found to be adults, and 668 were clearly in milk. Many of the remaining 171 may also have been nursing females, which at the time of their capture had not obtained sufficient nourishment to cause their milk glands to fill.

SEALS MADE SHY BY HUNTING.

Inquiry was made of several captains and hunters as to whether seals were as easy to capture this year as last in Bering Sea. They all give it as their judgment that seals were more difficult to approach this season than in 1894. Captain Cox, of the schooner *Sapphire*, said he

had noticed a marked difference in that respect, and attributed it to the hunting that had been carried on. In many cases they appeared to be unusually shy when there was no apparent cause for it.

FOOD OF SEALS.

The material which has been found in the stomachs of seals taken in different parts of Bering Sea indicates that only a small percentage is composed of fish which inhabit deep water. It is only reasonable to suppose, however, that when seals are in shallow water they feed both on bottom fish and on those swimming near the surface. A not uncommon component of their food is the red rockfish, which occurs both in deep and shallow water and possibly also near the surface at times, which would account for its being found in the stomachs of seals captured where the water is 100 fathoms or more deep.

On August 22, 1895, in latitude 55° 04′ north, longitude 168° 35′ west, the head of a macrurus was found in the stomach of a male seal. This group of fishes inhabits considerable depths and much speculation arose as to how it had been obtained by the seal. It was subsequently learned, however, that the *Albatross* had been dredging in deep water near our position from the 18th to the 22d, and during that time there had been thrown overboard many rejected specimens, among which were a number of macruri, which would be apt to float for some time at or near the surface if not molested.

It has been claimed that seals will not eat dead fish, but this is a mistake, for the writer has seen them devour salmon that had been dead several days.

Surface fishes, and especially squid, seem to be the natural food of the seal. In the stomachs that have been examined a variety of material was found, such as pieces of Alaskan pollock, salmon, and other fishes, but it has also been observed that in localities where squid are plentiful very little other food may be looked for. I am informed by hunters that on the coast of Japan and off the Commander Islands squid occur in great abundance, and that it is not an uncommon sight to see a half dozen or more seals together feeding on the tentacles of octopus floating at the surface. Sealers usually find squid plentiful off the island of Kadiak, and in that locality they have often been found in large quantities in the stomachs of the seals.

WHITE HUNTERS AT A DISADVANTAGE.

The white hunters on the *Dora Sieverd* did not have the same opportunity of getting seals as the Indians for several reasons, one of which was that, as a rule, they were the last to leave the vessel in the morning and the first to return at night. They were expected to hoist out all the canoes, and in the evening to hoist them in again, stow them away and lash them. Indians are useless in this kind of work, and upon their arrival alongside, their duties have ended, as the skinning of the seals devolves upon the steersmen.

The Indians, therefore, had every advantage in respect to hunting. On leaving a vessel the boats nearly always form a line so that each will have a clear space to windward. When all the boats start out together they are all on an equal footing; but when one or two boats, as was the case with our white hunters, are obliged to follow in the rear of others, their chance of seeing many seals is greatly lessened, for they are hunting in water already passed over, but the situation improves as the

boats become more widely separated. Sometimes, also, a sudden change of wind favors the last boats to go out and places them to windward, a coveted position which they could not otherwise have secured, a windward position being always considered the best. In perfectly calm weather one position is as good as another.

Record of the position of the vessel and of the catch of fur seals each day by the sealing schooner Dora Sieward during a cruise in Bering Sea in August and September, 1895, showing also the number of each sex taken daily as entered in the official log of the vessel.

Date.	Latitude.	Longitude.	Males.	Females.	Total.
1895.	N.	W.			
Aug. 1	54 28	167 08	36	6	42
2	54 41	167 51	26	19	45
3	54 43	167 00	7	6	13
4	54 37	167 20	8	8	16
9	54 42	167 43	14	6	20
10	54 58	167 31	18	55	73
11	55 10	167 40	29	60	89
12	55 02	167 48	6	9	15
14	55 03	167 45	14	16	30
15	55 08	167 40	48	51	99
15	.....	.....	(a)	(a)	12
17	55 15	168 30	38	47	85
18	55 21	168 32	1	1	2
19	54 56	168 00	2	2	4
20	55 15	168 15	44	67	111
21	55 28	168 05	26	43	69
22	55 06	168 38	20	24	44
24	55 26	168 30	10	11	21
26	55 15	171 55	74	83	157
27	55 08	171 45	68	78	146
28	55 06	170 43	28	29	57
31	55 02	170 10	5	6	11
Sept. 1	55 28	170 26	191	145	336
2	55 25	170 50	6	4	10
8	56 32	172 50	7	3	10
9	55 51	171 56	4	5	9
10	55 55	171 45	5	12	17
15	55 18	170 06	16	8	24
20	54 36	167 33	5	5	10
Total	.....	.....	756	809	1,577

a On August 15 a canoe went astray, but afterwards returned, bringing in 12 skins, of which the sexes were not determined.

Record of the catch of fur seals and of the number of each sex taken daily by the sealing schooner Dora Sieward during a cruise in Bering Sea in August and September, 1895, as determined by A. B. Alexander.

Date.	Males.	Females.	Total.	Date.	Males.	Females.	Total.
1895.				1895.			
Aug. 1	34	8	42	Aug. 22	12	32	44
2	26	19	45	24	10	11	21
3	6	7	13	26	62	95	157
4	8	8	16	27	68	78	146
9	13	7	20	28	14	43	57
10	18	55	73	31	5	6	11
11	10	79	89	Sept. 1	120	216	336
12	3	12	15	2	6	4	10
14	14	16	30	8	7	3	10
15	31	68	99	9	4	5	9
15	(a)	(a)	12	10	5	12	17
17	28	57	85	15	16	8	24
18	1	1	2	20	4	6	10
19	2	2	4				
20	44	67	111	Total	583	982	1,577
21	12	57	69				

a On August 15 twelve skins were taken, of which the sexes were not determined.

Approximate ages of the seals and the number of nursing females taken during the cruise of the sealing schooner Dora Sieward in Bering Sea in August and September, 1895, based upon examinations made by A. B. Alexander.

Date.	Males.		Females.		Number of nursing females.	Number not examined.
	Number taken.	Age.	Number taken.	Age. a		
1895.		*Years.*		*Years.*		
Aug. 1	3	5	5	ad.	5	.....
	21	3	3	2	.....	.....
	10	2	.....	.....	.....	.....
2	18	3	17	ad.	17	.....
	8	2	2	2	.....	.....
3	6	3 to 5	6	ad.	6	.....
	.....	.....	1	2	.....	.....
4	5	4	4	ad.	4	.....
	3	5	4	2	.....	.....
9	12	4	7	ad.	6	.....
	1	5	.....	.....	.....	.....
10	1	6	55	ad.	47	.....
	8	4	.....	.....	.....	.....
	9	3	.....	.....	.....	.....
11	10	3 to 5	70	ad.	50	24
	.....	.....	9	2	.....	.....
12	2	4	9	ad.	9	.....
	1	5	3	2	.....	.....
14	12	3	16	ad.	16	.....
	2	4	.....	.....	.....	.....
15	27	5	60	ad.	58	.....
	4	4	8	2	.....	.....
16	.....	.....	1	ad.	.....	.....
17	20	4	57	ad.	35	.....
	8	5	.....	.....	.....	.....
18	1	3	1	ad.	1	.....
19	2	4	2	ad.	2	.....
20	35	4	67	ad.	62	.....
	9	5	.....	.....	.....	.....
21	5	4	54	ad.	48	.....
	4	3	3	2	.....	.....
	3	2	.....	.....	.....	.....
22	12	4	28	ad.	28	.....
	.....	.....	4	2	.....	.....
24	10	5	11	ad.	11	.....
26	50	4 to 5	92	ad.	65	72
	12	3	3	2	.....	.....
27	65	3 to 4	78	ad.	74	60
	3	4 to 5	.....	.....	.....	.....
28	14	3 to 5	43	ad.	37	.....
31	5	3 to 5	6	ad.	4	.....
Sept. 1	119	3 to 4	216	ad.	80	156
	1	5	.....	.....	.....	.....
2	6	4 to 5	4	ad.	3	.....
8	5	4 to 5	3	ad.	3	.....
	2	1	.....	.....	.....	.....
9	4	2 to 3	3	ad.	3	.....
	.....	.....	2	1 to 2	.....	.....
10	5	2 to 4	11	ad.	11	.....
	.....	.....	1	1	.....	.....
15	14	2 to 3	8	ad.	3	.....
	2	4 to 5	.....	.....	.....	.....
20	3	3	6	ad.	.....	.....
	1	5	.....	.....	.....	.....

a All females above 2 years old are classed as adults, "ad."

Record of physical observations made during the cruise of the sealing schooner Dora Sieward in Bering Sea, August and September, 1895, by A. B. Alexander.

Date.	Time of day.	Temperature.		Wind.		Barometer reading.	Noon position.	
		Air.	Surface water. a	Direction.	Force.		Latitude.	Longitude.
1895.		°	°		*Miles.*		N.	W.
Aug. 1	8 a. m	51	47	ENE.	3	29.90		
	10 a. m	49	47	NE.	2			
	12 m	48	47	NE. by E.	2	29.92	54 25	167 0[illegible]
	4 p. m	47	47	NE.	2	29.90		
	8 p. m					29.90		
2	7 a. m	47	45	NNW.	2			
	8 a. m	48	45	NNW.	2	29.90		
	10 a. m	48	46	NNW.	3		54 51	167 2[illegible]
	12 m	48	46	NW. by W.	3	29.90		
	2 p. m	48	46	NNW.	3			
	4 p. m	48	46	W.	4	29.90		
	6 p. m	47	46	NW.	4			
	8 p. m					29.92		
3	7 a. m	47	47	NW. by N.	3			
	8 a. m	47	47	NW. by N.	3	29.92		
	10 a. m	47	47	NW. by N.	3			
	12 m	47	47	NW.	4	30.00	54 43	167 [illegible]
	2 p. m	48	47	NW.	4			
	4 p. m	47	46	NW.	4	30.00		
	6 p. m	45	46	NNW.	5			
	8 p. m	44	46	NNW.	4	30.10		
4	8 a. m	45	43	NW. by W.	4	30.14		
	10 a. m	45	44	WNW.	3			
	12 m	46	46	W.	3	30.20	54 37	167 2[illegible]
	2 p. m	45	46	W.	3			
	4 p. m	44	46	W. by S.	3	30.20		
	6 p. m	44	46	W.	2			
	8 p. m					30.10		
5	8 a. m	45	46	W. by S.	3	30.10		
	10 a. m	45	45	S. by E.	4			
	12 m	45	45	SSE.	4	30.10	55 01	168 0[illegible]
	4 p. m	46	47	S. by E.	5	30.08		
	8 p. m	45	44	S.	4	30.00		
6	8 a. m	45	46	SE.	8	29.76		
	10 a. m	45	46	SE.	8			
	12 m	45	46	S. by E.	7	29.65	54 45	167 5[illegible]
	4 p. m	46	46	S.	7	29.64		
	8 p. m	46	46	S. by W.	8	29.50		
7	8 a. m	46	43	SW.	7	29.60		
	12 m	46	43	SSW.	6	29.71	54 56	167 2[illegible]
	2 p. m	46	44	SW.	5			
	4 p. m	46	45	SW.	5	29.74		
	8 p. m	46	44	SW.	6	29.74		
8	8 a. m	45	45	WSW.	6	29.78		
	10 a. m	46	45	W.	6			
	12 m	46	45	W.	6	29.78	55 01	167 3[illegible]
	4 p. m	45	46	SW. by W.	6	29.80		
	6 p. m	45	46	SW. by W.	6			
	8 p. m	44	46	SW.	6	29.82		
9	8 a. m	47	45	WSW.	4	29.96		
	10 a. m	47	44	WSW.	3			
	12 m	48	44	W. by S.	3	29.98	54 42	167 4[illegible]
	2 p. m	47	44	W. by N.	4			
	4 p. m	45	44	W. by N.	5	29.98		
	8 p. m	45	44	W. by N.	4	30.00		
10	7 a. m	43	46	W. by N.	3			
	8 a. m	45	46	W. by N.	3	30.20		
	10 a. m	45	46	W. by S.	3			
	12 m	44	47	W.	3	30.20	54 58	167 [illegible]
	2 p. m	45	47	SW. by W.	3			
	4 p. m	45	47	SW. by W.	2	30.20		
	6 p. m	45	47	SW. by W.	2			
	8 p. m					30.20		
11	8 a. m	46	46	Var.	1	30.12		
	10 a. m	46	46	WNW.	1			
	12 m	47	47	Var.	1	30.10	55 00	167 [illegible]
	2 p. m	47	47	Var.	1			
	4 p. m	46	46	N.	2	30.00		
	8 p. m	45	46	NE.	2	29.98		
12	8 a. m	46	46	WNW.	3	30.00		
	10 a. m	47	47	W. by N.	3			
	12 m	47	47	W.	3	30.00	55 06	167 [illegible]
	2 p. m	47	46	W. by N	3			
	4 p. m	47	46	W. by N.	2	30.12		
	6 p. m	46	46	W. by N.	3			
	8 p. m					30.20		

a The temperature of the water was taken 5 feet below the surface.

Record of physical observations made during the cruise of the sealing schooner Dora Steward in Bering Sea, August and September, 1895, by A. B. Alexander—Continued

Date.	Time of day.	Temperature.		Wind.		Barometer reading.	Noon position.	
		Air.	Surface water.[a]	Direction.	Force.		Latitude.	Longitude.
1895.		°	°		*Miles.*		N.	W.
Aug. 13	8 a. m	48	45	SW. by W.	5	30.20	54 56	168 15
	2 p. m	45	45	WSW.	5	30.20		
14	8 a. m	46	44	WSW.	5	30.28		
	10 a. m	46	45	WSW.	5			
	12 m	48	45	SW.	4	30.30	55 03	167 45
	2 p. m	47	45	WSW.	4			
	4 p. m	46	45	WSW.	3	30.30		
	8 p. m	46	45	WSW.	3	30.30		
15	8 a. m	46	44	W.	1	30.32		
	10 a. m	48	45	Var.	1			
	12 m	49	45	Var.	1	30.32	55 08	167 40
	2 p. m	49	45	Var.	1			
	4 p. m	47	45	SE.	1	30.00		
	6 p. m	46	45	ESE.	2			
	8 p. m					30.28		
16	8 a. m	48	44	SSE.	6	30.00		
	12 m	47	44	SSE.	4	30.00	55 07	168 10
	2 p. m	46	44	SSE.	3			
	4 p. m	46	46	SSE.	3	29.96		
	8 p. m					29.96		
17	8 a. m	47	45	ESE.	1	29.98		
	10 a. m	48	45	Calm.	0			
	12 m	48	46	SE.	1	30.00	55 15	168 30
	2 p. m	49	46	SE.	1			
	4 p. m	49	46	Calm.	0	29.98		
	8 p. m	47	46	SSE.	2	29.94		
18	8 a. m	49	45	SE. by S.	5	29.78		
	10 a. m	49	45	SE. by S.	5			
	12 m	49	45	SSE.	4	29.72	55 21	168 32
	2 p. m	49	45	S. by W.	3			
	4 p. m	49	45	SSW.	3	29.65		
	6 p. m	49	45	SW. by S.	3			
	8 p. m					29.65		
19	8 a. m	46	46	SW. by W.	3	29.72		
	10 a. m	47	47	SW. by W.	4			
	12 m	46	47	SW.	4	29.72	54 56	168 00
	2 p. m	46	46	SW.	3			
	4 p. m	46	45	SW.	3	29.70		
	6 p. m	46	45	SW.	3			
	8 p. m	46	45	SW. by S.	3	29.70		
20	8 a. m	46	46	W.	2	29.62		
	10 a. m	48	47	W.	2			
	12 m	48	47	WNW.	2	29.68	55 14	168 15
	2 p. m	48	47	WNW.	2			
	4 p. m	48	47	WNW.	2	29.78		
	8 p. m	47	47	WNW.	2	29.78		
21	8 a. m	46	46	NW. by W.	2	29.90		
	10 a. m	48	47	WNW.	2			
	12 m	47	46	WNW.	2	29.92	55 29	168 05
	2 p. m	47	47	WNW.	3			
	4 p. m	47	47	WNW.	3	29.91		
	6 p. m	47	47	WNW.	3			
	8 p. m	47	47	WNW.	3	29.91		
22	8 a. m	47	47	W. by N.	3	30.10		
	10 a. m	48	47	NW. by W.	2			
	12 m	49	48	WSW.	2	30.08	55 04	168 35
	2 p. m	48	47	WSW.	2			
	4 p. m	46	47	WSW.	2	30.08		
	6 p. m	47	47	WSW.	3			
	8 p. m					30.10		
23	8 a. m	47	46	S. by W.	3	30.00		
	10 a. m	46	46	SSW.	4			
	12 m	47	47	SSW.	4	30.00	55 28	168 10
	2 p. m	47	47	S. by W.	4			
	4 p. m	46	47	SSW.	5	29.98		
	6 p. m	46	47	SSW.	5			
	8 p. m	46	47	S. by W.	5	29.98		
24	8 a. m	47	46	SW.	1	30.00		
	10 a. m	47	46	NNE.	1			
	12 m	47	47	N.	4	30.10	55 27	168 30
	2 p. m	47	47	N.	5			
	4 p. m	47	47	N.	5	30.10		
	6 p. m	45	47	NNE.	5			
	8 p. m					30.10		
25	8 a. m	48	47	N. by E.	7	30.20		
	10 a. m	48	47	N. by E.	7			
	12 m	48	47	N. ½ E.	6	30.20	55 15	170 38

[a] The temperature of the water was taken 5 feet below the surface.

Record of physical observations made during the cruise of the sealing schooner Dora Siewert in Bering Sea, August and September, 1895, by A. B. Alexander—Continued.

Date.	Time of day.	Temperature.		Wind.		Barometer reading.	Noon position.	
		Air.	Surface water.[a]	Direction.	Force.		Latitude.	Longitude.
1895.		°	°		*Miles.*		N.	W.
Aug. 25	2 p. m.	47	47	N.	6			
	4 p. m.	47	47	N.	6	30.20		
	8 p. m.	47	47	N.	6	30.18		
26	8 a. m.	45	47	N.	2	30.08		
	10 a. m.	45	47	NW. by N.	2			
	12 m	46	47	WNW.	1	30.00	55 15	170 53
	2 p. m.	45	47	WSW.	2			
	4 p. m.	46	47	WSW.	2	29.98		
	6 p. m.	45	47	WSW.	2			
	8 p. m.					29.95		
27	8 a. m.	45	47	WNW.	1	29.92		
	10 a. m.	46	47	SW.	1			
	12 m	48	48	W. by S.	1	29.90	55 10	170 47
	2 p. m.	49	48	W.	2			
	4 p. m.	46	49	W. by N.	2	29.90		
	6 p. m.	44	49	NNE.	2			
	8 p. m.					29.98		
28	8 a. m.	44	48	W. by S.	2	29.82		
	10 a. m.	46	48	SW. by S.	3			
	12 m	46	48	SW.	3	29.90	55 07	170 45
	2 p. m.	46	48	S. by W.	3			
	4 p. m.	46	48	S. by E.	3	29.76		
	6 p. m.	45	48	SE.	3			
	8 p. m.					29.70		
29	8 a. m.	47	47	SE.	8	29.40		
	10 a. m.	47	47	SE.	8			
	12 m	48	47	S. by E.	8	29.40	55 28	170 15
	2 p. m.	48	47	S.	7			
	4 p. m.	48	47	S. by W.	6	29.50		
	6 p. m.	48	47	S. by W.	6	29.52		
	8 p. m.							
30	8 a. m.	48	47	SW. by S.	8	29.80		
	10 a. m.	48	47	SW. by S.	8			
	12 m	48	47	SW. by S.	8	29.85	55 25	170 10
	2 p. m.	48	47	SW. by S.	8			
	4 p. m.	48	47	SW. by S.	8	29.90		
	8 p. m.	48	47	SW. by S.		29.94		
31	8 a. m.	48	47	SW.	4	30.40		
	10 a. m.	48	47	SW.	4			
	12 m	48	47	SW. by W.	4	30.50	55 11	170 05
	2 p. m.	48	47	SW.	4			
	4 p. m.	48	47	SW. by W.	3	30.52		
	6 p. m.	48	47	SW. by W.	3			
	8 p. m.					30.60		
Sept. 1	8 a. m.	45	47	SW.	1	30.60		
	10 a. m.	46	47	Var.	1			
	12 m	46	47	Var.	1	30.58	55 29	170 28
	2 p. m.	49	47	Var.	1			
	4 p. m.	45	47	Var.	1	30.58		
	6 p. m.	45	47	NW.	1			
	8 p. m.					30.60		
2	8 a. m.	45	47	NE. by N.	3	30.60		
	10 a. m.	47	47	NE. by N.	4			
	12 m	46	47	NE. by N.	4	30.60	55 25	170 50
	2 p. m.	45	47	NE.	4			
	4 p. m.	45	47	NE.	4	30.58		
	6 p. m.	44	47	NE.	4			
	8 p. m.					30.56		
3	8 a. m.	45	47	NE.	5	30.40		
	10 a. m.	45	47	NE. by E.	5			
	12 m	46	47	NE.	5	30.40	55 29	170 36
	2 p. m.	46	47	NE. by E.	6			
	4 p. m.	45	47	NE. by E.	6	30.40		
	6 p. m.	45	47	NE. by E.	6			
	8 p. m.			NE. by E.	6	30.40		
4	8 a. m.	45	46	E.	7	30.20		
	10 a. m.	45	46	ENE.	8			
	12 m	46	47	ENE.	8	30.15	55 55	170 50
	2 p. m.	46	47	ENE.	8			
	4 p. m.	46	47	ENE.	8	30.14		
	6 p. m.	46	47	ENE.	8			
	8 p. m.			ENE.	8	30.12		
5	8 a. m.	46		ENE.	8	30.00		
	10 a. m.	46		ENE.	8			
	12 m	46		ENE.	8	29.98	55 22	170 15
	2 p. m.	46		ENE.	8			
	4 p. m.	46		ENE.	8	29.95		

[a] The temperature of the water was taken 5 feet below the surface.

Record of physical observations made during the cruise of the sealing schooner Dora Siewerd in Bering Sea, August and September, 1895, by A. B. Alexander—Continued.

Date.	Time of day.	Temperature.		Wind.		Barometer reading.	Noon position.	
		Air.	Surface water. a	Direction.	Force.		Latitude.	Longitude.
1895.		°	°		*Miles.*		N.	W.
Sept. 5	8 p. m.			ENE.	8	29.96		
6	8 a. m.	46		NE. by E.	9	30.00		
	10 a. m.	47		NE. by E.	8			
	12 m	47		NE. by E.	8	30.10	56 10	170 45
	2 p. m.	47		NE. by E.	8			
	4 p. m.	47		NE. by E.	8	30.10		
	6 p. m.	47		NE. by E.	8			
	8 p. m.			NE. by E.	8	30.20		
7	8 a. m.	47	46	E. by N.	4	30.30		
	10 a. m.	47	46	E. by N.	4			
	12 m	47	45	E.	4	30.31	56 22	171 50
	2 p. m.	46	45	E.	3			
	4 p. m.	46	45	E.	3	30.32		
	6 p. m.	46	45	E.	3			
	8 p. m.			E.	3	30.38		
8	8 a. m.	46	46	E. by S.	2	30.40		
	10 a. m.	48	46	E.	3			
	12 m	45	46	E.	3	30.40	56 35	172 20
	2 p. m.	45	46	E.	3			
	4 p. m.	44	45	E.	3	30.40		
	6 p. m.	44	45	E.	3			
	8 p. m.			E.	3	30.40		
9	8 a. m.	47	47	E. by N.	4	30.18		
	10 a. m.	47	47	E. by N.	4			
	12 m	47	47	E. by N.	4	30.10	55 49	171 54
	2 p. m.	47	47	E. by N.	3			
	4 p. m.	47	47	SE.	3	30.02		
	6 p. m.	46	47	SE.	2			
	8 p. m.			SE.	2	30.00		
10	8 a. m.	47	46	ESE.	3	29.90		
	10 a. m.	47	47	ESE.	3			
	12 m	47	47	E.	3	29.80	55 50	171 49
	2 p. m.	48	47	E. by S.	3			
	4 p. m.	47	47	ESE.	3	29.60		
	6 p. m.	47	47	SE. by E.	4			
	8 p. m			SE. by E.	4	29.55		
11	8 a. m.	46	47	S. by E.	7	29.40		
	10 a. m.	47	47	S. by W.	7			
	12 m	47	47	S. by W.	7	29.38	55 57	171 30
	2 p. m.	47	47	S.	7	29.35		
	4 p. m.	47	47	S.	7	29.35		
	6 p. m.	46	47	S.	7			
	8 p. m.			S.	7	29.32		
12	8 a. m.	45		SW.	8	29.40		
	10 a. m.	46		SW. by W.	8			
	12 m	46		WSW.	9	29.55	55 44	171 30
	2 p. m.	46		WSW.	9			
	4 p. m.	45		WSW.	8	29.65		
	6 p. m.	45		WSW.	8			
	8 p. m.			WSW.	8	29.72		
13	8 a. m.	44	44	W. by S.	4	29.90		
	10 a. m.	46	44	SW. by W.	5			
	12 m	46	45	W. by S.	4	29.90	55 44	171 51
	2 p. m.	46	46	W.	3			
	4 p. m.	46	46	W.	2	29.90		
	6 p. m.	46	46	SW. by S.	3			
	8 p. m.					29.98		
14	8 a. m.	47	45	SSW.	8	29.68		
	10 a. m.	47	45	SSW.	8			
	12 m	47	45	SSW.	8	29.62	55 20	171 25
	2 p. m.	47	45	SSW.	8			
	4. p. m.	46	45	SW. by S.	8	29.65		
	6 p. m.	46	45	SW. by S.	8			
	8 p. m.					29.65		
15	8 a. m.	44	45	Var.	1	29.60		
	10 a. m.	45	45	NW.	3			
	12 m	45	45	NW.	3	29.60	55 10	170 06
	2 p. m.	44	45	NW.	4			
	4 p. m.	43	45	NNW.	5	29.78		
	6 p. m.	42	45	NNW.	5			
	8 p. m.					29.80		
16	8 a. m.	44	46	W.	5	30.00		
	10 a. m.	46	46	W.	5			
	12 m	46	46	W.	5	30.02	55 20	170 32
	2 p. m.	42	46	W. by S.	4			
	4 p. m.	42	46	SW.	4	30.00		
	6 p. m.	42	46	SSW.	5			

a The temperature of the water was taken 5 feet below the surface.

Record of physical observations made during the cruise of the sealing schooner Dora Sieward in Bering Sea, August and September, 1895, by A. B. Alexander—Continued.

Date.	Time of day.	Temperature.		Wind.		Barometer. reading.	Noon position.	
		Air.	Surface water. *a*	Direction.	Force.		Latitude.	Longitude.
1895.		°	°		*Miles.*		N.	W.
Sept. 16	8 p. m.					29.98		
17	8 a. m.	41	45	W.	4	30.40		
	10 a. m.	42	45	W.	4			
	12 m.	44	45	WN. W.	5	30.45	55 17	170 [illegible]
	2 p. m.	44	45	W.	3			
	4 p. m.	44	45	W.	3	30.50		
	6 p. m.	43	45	W.	1			
	8 p. m.					30.58		
18	8 a. m.	44	45	SE.	5	30.48		
	10 a. m.	44	45	SE.	5			
	12 m.	45	45	SE.	5	30.40	55 30	169 [illegible]
	4 p. m.	45	46	SE.	5	30.32		
	6 p. m.	45	46	SE. by S.	5			
	8 p. m.				5	30.25		
19	8 a. m.	46	45	N. E.	5	29.82		
	10 a. m.	47	46	NE. by N.	5			
	12 m.	47	46	NE. by N.	5	29.74	55 28	170 [illegible]
	2 p. m.	47	46	NE. by N.	5			
	4 p. m.	47	46	NNE.	5	29.72		
	6 p. m.	46	45	N. by E.	5			
	8 p. m.			N. by E.	5	29.70		
20	8 a. m.	45	45	NE. by N.	3	29.70		
	10 a. m.	45	45	NE. by N.	2			
	12 m.	44	45	Var.	1	29.70	55 36	167 [illegible]
	2 p. m.	43	45	SE.	2			
	4 p. m.	43	45	SE.	4	29.70		
	6 p. m.	43	45	SE. by S.	4	29.70		

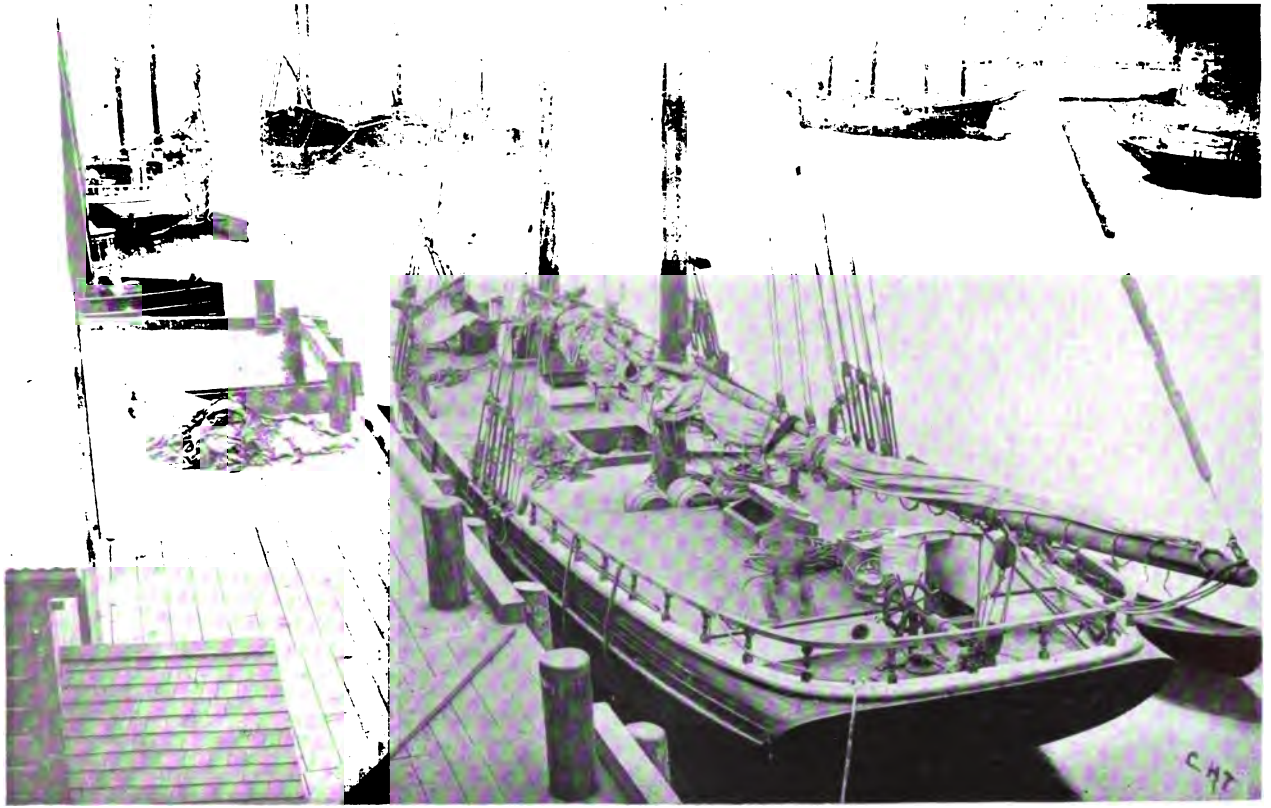
a The temperature of the water was taken 5 feet below the surface.

Record showing the principal food found in the stomachs of seals taken in Bering Sea by the schooner Dora Sieward.

Date.	Number of seals taken.	Principal food found in the stomach.
1895.		
Aug. 1	42	Nearly all empty; a few could not be identified.
2	45	Do.
3	13	Empty.
4	16	Do.
9	20	A piece of squid and fish bones.
10	73	Pieces of fish and fish bones.
11	89	Do.
12	15	Do.
14	30	Pieces of squid and squid beaks.
15	99	Alaskan pollock and pieces of fish.
17	85	Squid, pieces of fish, and fish bones.
18	2	Empty.
19	4	Do.
20	111	Squid, squid beaks, fish bones, pollock, and other fish.
21	69	Squid, pollock, and salmon.
22	44	Squid, pollock, salmon, and fish bones.
24	21	Squid, squid beaks, salmon, pollock, fish bones.
26	157	Squid, pollock, and pieces of salmon.
27	146	Squid, pollock, and fish bones.
28	57	Do.
31	11	Pollock.
Sept. 1	336	Mostly squid and what looked like cod.
2	10	A few pieces of squid.
8	10	Pollock.
9	9	Empty.
10	17	Squid, squid beaks, mingled with crustacea.
15	24	Squid.
20	10	Empty.

TYPES OF SEALING SCHOONERS, VICTORIA HARBOR, 1894.

TYPES OF SEALING SCHOONERS, VICTORIA HARBOR, 1894.

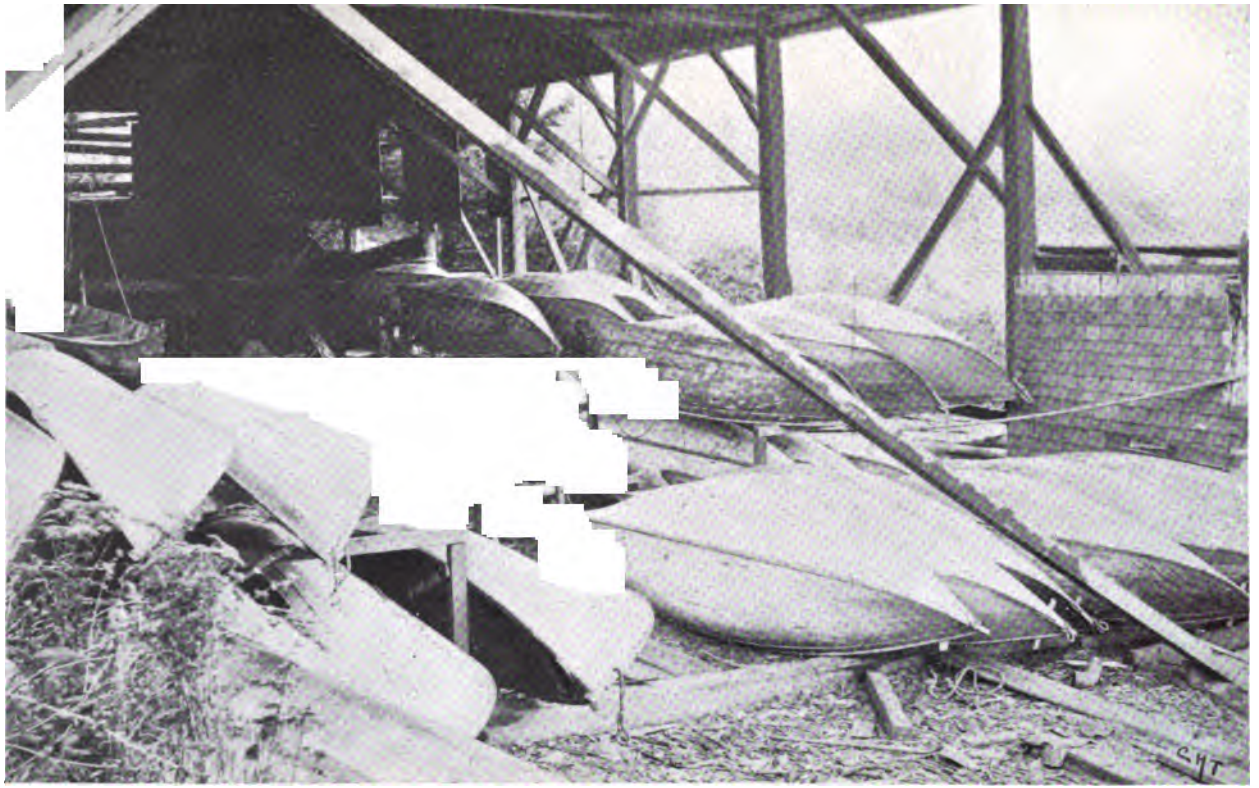


CANADIAN SEALING SCHOONER AINOKO.
(Discharging skins at Victoria.)

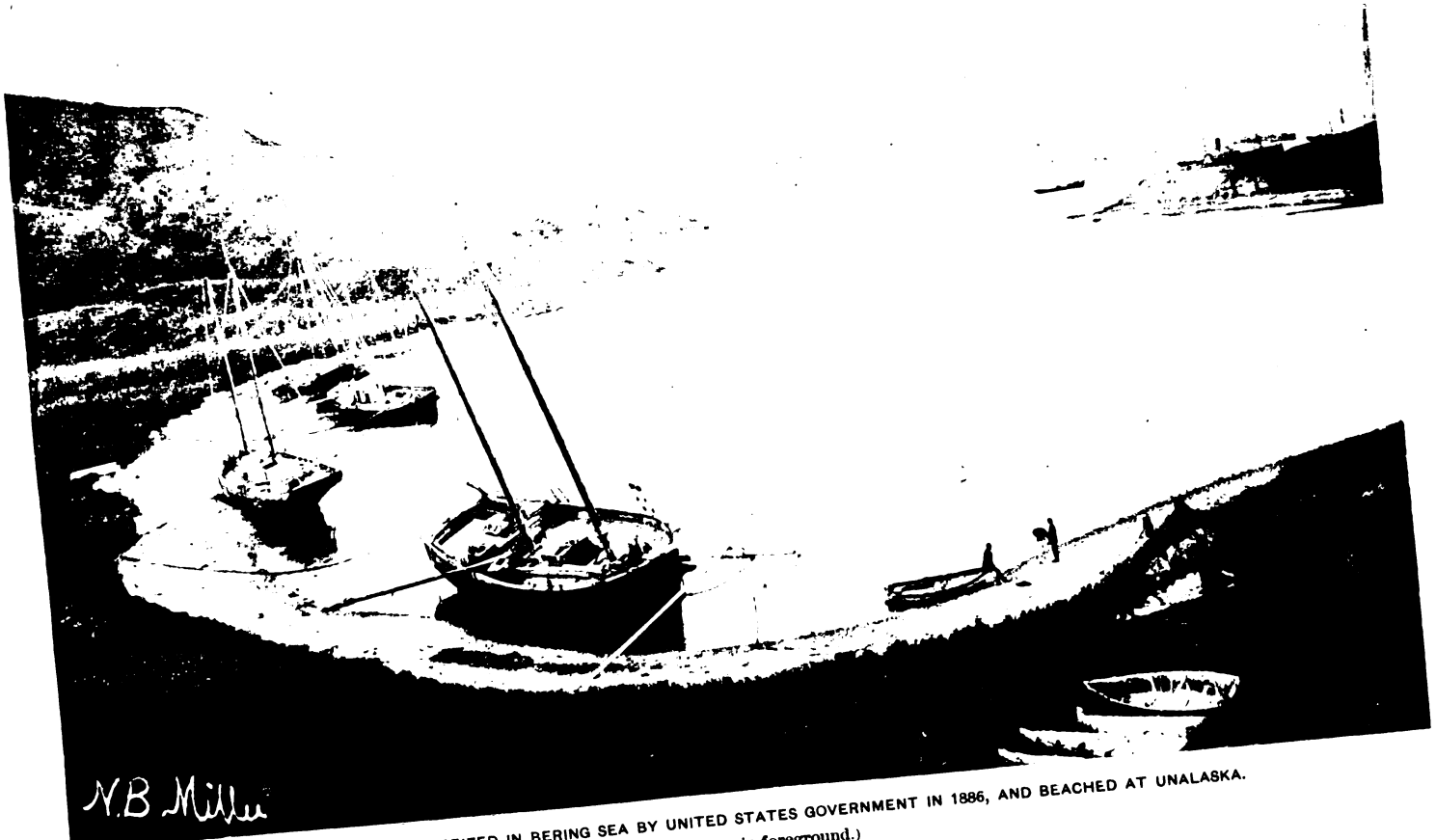
CANADIAN SEALING SCHOONER ANNIE E. PAINT, BERING SEA.

AMERICAN SEALING SCHOONER COLUMBIA, WITH CANOES, BERING SEA.

PORTION OF INDIAN CREW OF CANADIAN SEALING SCHOONER FAVORITE, 1894.



SEALING BOATS STORED AT VICTORIA.



SEALING SCHOONERS SEIZED IN BERING SEA BY UNITED STATES GOVERNMENT IN 1886, AND BEACHED AT UNALASKA.
(Thornton in foreground.)

SEIZED IN BERING SEA BY UNITED STATES GOVERNMENT AND BEACHED AT UNALASKA.

SUPPLEMENT

TO

REPORT OF C. H. TOWNSEND

ON

PELAGIC SEALING IN 1895.

REPORT ON THE FUR-SEAL CATCH OF JAPANESE, BRITISH, AND AMERICAN VESSELS SAILING FROM AND WITH HEADQUARTERS AT JAPANESE PORTS IN 1895[1].

By C. H. TOWNSEND.

In my report on pelagic sealing in 1895 (Senate Document 137, part 2, Fifty-fourth Congress, p. 29) reference is made to the taking of fur seals along the Asiatic Coast by vessels of which no record was at hand.

A considerable number of vessels whose names had become familiar to me in connection with pelagic sealing matters not having been accounted for in either Canadian or American official reports on this subject for the year 1895, inquiries were made respecting them, and the results are herewith presented.

On November 25, 1895, a letter of inquiry respecting vessels of this class was prepared, which was transmitted by the United States Commissioner of Fish and Fisheries through the Department of State to consular officers stationed in Japan, from whom replies have been received as follows: James F. Connelly, Hiogo, February 26, 1896; W. H. Abercrombie, Nagasaki, February 27, 1896; N. W. McIvor, Kanagawa (Yokohama), March 6, 1896.

Hiogo and Nagasaki are not frequented by sealing vessels. Consul-General McIvor furnishes information concerning sealing vessels having their headquarters at Yokohama, and promises similar data from the port of Hakodate. From the data thus obtained, and from information recently furnished me by sealers who visited the coast of Japan during the past season, it appears that the catch of 38,742 fur seals already reported on the Asiatic side of the Pacific Ocean will have to be increased by 10,000 or 12,000, while a further increase in the size of the catch may be announced later.

Catch of pelagic sealing vessels sailing from Japan in 1895, fitting out and with headquarters at Yokohama.

Schooner.	Flag.	Catch.	Remarks.
Arctic	British	356	186 of these taken near Commander Islands.
Anaconda	American	441	170 of these taken in Okhotsk Sea.
Josephine	do	313	
Retriever	do	891	All these taken near Commander Islands.
Golden Fleece	do	1,071	429 of these taken near Commander Islands.
Chishima Morn, No. 1	Japanese	550	
Chishima Morn, No. 2	do	950	
Kaiba Morn	do	650	
Yernohe Morn	do	576	
(?) Morn	do	218	
Total		6,016	

[1] Supplement to report of C. H. Townsend on pelagic sealing in 1895.

Consul-General McIvor reports that in addition to the catch made by vessels, 2,000 or 3,000 seals are taken every season by Japanese fishermen, the skins being usually disposed of at Hakodate.

Other vessels sealing off the coast of Japan in 1895 were reported by steamer *Empress of China*, which arrived at Victoria, British Columbia, on July 4, with catches to June 18, as follows:

Vessel.	Flag.	Catch.
Mary H. Thomas	American	1,100
Anna Matilda	do	765
W. P. Hall	British	500
Alexander	American	573
Sea Lion		1,670
Total		4,608

Information furnished by Consul-General McIvor, concerning vessels recently sealing off the coast of Japan, is as follows:

Vessel.	Flag.	Remarks.
Emma	American	Seized by Russia, Okhotsk Sea, April 22, 1895.
Leipan	Japanese	Seized by Russia, Okhotsk Sea, October, 1895.
Rose Sparks	American	Supposed to be lost.
W. P. Hall	British	No longer sealing. Name changed to Iolanthe.
Alexander		Two vessels of this name said to have been sealing off the coast of Japan.
Retriever	American	No longer sealing. Sold.

Consul Abercrombie states that in the case of the *Emma*, the vessel was confiscated and the crew furnished transportation to the United States by the consulate of Nagasaki. Consul-General McIvor states that seventeen members of the crew of the *Leipan* are now in prison at Vladivostock.

Of the fur-seal catch made by vessels seized by the Russian Government in the Okhotsk Sea nothing is known at present. The annual catch in the Okhotsk Sea may prove to be of more importance than the limited information at hand has led us to believe.

In a report by the writer, soon to be published in the Bulletin of the United States Fish Commission, containing notes on the Kurile and other islands inhabited by fur seals, reference is made to a so-called "in-shore" herd regularly entering the Okhotsk Sea in June and July through the passes northeast of Yezo Island.

The number of seals composing it has led many sealers to believe that it is too great to be accounted for by the limited rookeries of Robben Island, in the Okhotsk Sea, and it is thought that many of them belong to small rookeries in the Kuriles, from which a considerable number of seals have within a few years been taken. It is also reported, although somewhat vaguely, that fur seals occur on St. Jona, Talan, and other islands in the northern Okhotsk waters.

I am informed by Dr. L. Stejneger, who spent the summer of 1895 on the Commander Islands studying the seal fishery, that the Russian Government has made leases to the Russian Sealskin Company, lessees of the Commander Islands, of all islands belonging to Russia that are now known to be inhabited by fur seals or that may be discovered. Dr. Stejneger is led to believe that the Russian Government and its lessees are in possession of information respecting the fur seal in the

Okhotsk Sea that has not been given to the public in order to avoid inviting attention to the matter.

In the report received from Consul-General McIvor it is stated that the schooners *Golden Fleece*, *Silver Fleece*, *Josephine*, *Anaconda*, and *Arctic*, with about nine Japanese vessels, are reported to be fitting out at Yokohama for sealing during the season of 1896.

The fur-seal catch made in 1894 by some of the vessels mentioned in Mr. McIvor's report being, with the exception of the *Arctic* (catch 261), included in the Canadian and American reports for that year, need not be given here.

OBSERVATIONS

ON

THE HABITS OF THE FUR SEAL.

BY

COMMANDER J. J. BRICE, U. S. N.

OBSERVATIONS ON THE HABITS OF THE FUR SEAL.

By Commander J. J. BRICE, U. S. N.

The fur seal, according to existing laws, is protected from the 30th of April until the 1st of August, and at all times within the radius of 60 miles of the Pribilof Islands, including the territorial limit; consequently pelagic sealing can hereafter only be carried on successfully during the breeding season. This practice prevails in the Bering Sea, outside of the protected zone, during the month of August, when the females are captured on the way to and from the feeding grounds. The law also provides for their protection hereafter during the annual migration from the south to the rookeries for breeding, which begins in April and ends in July.

The seal, although often described as almost human in its intelligence, is in reality a very stupid animal, whose reputation for intelligence is based merely upon superficial appearances, especially its soft, beautiful eyes, which appeal to you in their apparent innocence. Much stress has also been placed upon their cleverness in finding their way over immense distances in the ocean. In this and most other movements they are governed by the temperature of the water and are controlled by circumstances rather than guided by intelligence, merely obeying the laws that nature has provided to enable them to find their way to distant points in the ocean. When compared with the instinct exhibited in many species of migratory birds going to the same regions the movements of the seal are matter-of-fact and rather commonplace.

Combined with the influence of the temperature of the water upon the movements of the seal is the wonderful rapidity of action which enables them to cover without effort a vast area for observation.

The seals leave the rookeries in the fall and are driven out of Bering Sea by the decreasing temperature of the water as winter approaches, seeking the more genial waters off Vancouver and the coast of California. On leaving Bering Sea they follow its current south through the passes among the Aleutian Islands, where they strike the Japan current, leading them to the coast of Alaska, where there is plenty of food; thence following the cold current down the coast of Vancouver, off which land the old male seals remain, scattered over the ocean and adjacent waters, having found a temperature suitable to their condition in a locality stocked with abundance of fish food.

The old male seal is six or eight times larger than the females or the young bachelor seals, and has a superabundance of fat, requiring a lower temperature of water to live in than the female and other small seals, which accounts for their separation. The females and smaller animals continue the journey south in the cold stream off the coast of California, flowing in a southerly direction, in which locality they also

disperse over the ocean for food, having found a slightly higher temperature in this region suitable also to their condition.

The same laws govern them on their way to the breeding ground, combined with the strongest instinct in all animals, that of propagation and the care of their young. In the spring the old males are the first to become uneasy with rising temperature of the water, which has advanced from 44° in February to 50° in April. The temperature most adapted to the nature of the seal is between 40° and 46°, and to seek relief by reducing the temperature they start north, the only direction by which this object can be attained, guided by the cold stream which flows down along the Alaska and Vancouver coast, leading them in the direction of the rookeries. Their course is direct to the Pribilof Islands, by the cold streams which flow from that direction, and is only interrupted near the Fair Weather grounds off Sitka, where the warm water of the Japan current is felt, causing some confusion in the progress of the herd until they strike one of the various cold flows from the Bering Sea current.

Off Sitka large portions of the herd are often found in their bewilderment heading in various ways in search of the cold current, and sometimes they make considerable progress in the direction from which they came before the cold stream in the vicinity of Kadiak Island leading to the rookeries is found, by which they reach the passes through the Aleutian group into Bering Sea, where they are virtually on their breeding ground.

The females and other small seals are governed by the same conditions, except that the females are much slower in their progress north on account of the young, and are easily captured at this time when, from fatigue, they are resting on the surface of the water. They are also influenced in pursuing this route by their breeding instinct and the supply of food off the coast and estuaries of the rivers.

It is said that the catch for the year 1894 by predatory sealers will be in the neighborhood of 135,000 seals. In addition to this as many as 20,000 young were destroyed by starvation. The number taken in Bering Sea from the 1st to the 15th of August was large, something like 90 per cent of them being females that had left their young and gone to the cod banks for food, a distance of 200 miles, whence they are taken in numbers by the sealers. The death under these circumstances of one female seal means also the death of her young by starvation. In fact, more harm is done to the seal herd in the few weeks of sealing in August than at any other time. Aside from destroying the female and the young they are disturbed when they are most timid and have sought seclusion to rear their young. Already a restlessness and change in the habits of the seals have been observed, which are indications of the disintegration of the herd.

The use of firearms for sealing is now prohibited by law, the spear having been substituted. The silent destruction by the latter instrument does not frighten the seal, and its aim is as certain and more deadly than the rifle or shotgun. The warning noise of the latter renders them shy and wary, but with the former it is the same slaughter of unsuspicious animals from the commencement to the end of the season. As a proof of this it is only necessary to cite the wonderful catch of the sealing schooners this year by the spear.

The islands of St. Paul and St. George are well adapted for the breeding purposes of the fur seal, because they are free from all predatory animals and birds.

Owing to the natural stupidity of the seal he is almost defenseless when on shore and an easy prey. Consequently the lonely and remote Pribilof Islands are especially fitted for their use and the only islands so protected in all this region.

The seals move through the water with lightning-like rapidity, and the space they cover in an incredibly short time gives them an immense radius of observation in their movements. An idea of their speed can be had when it is known that the females, when nursing their young, procure food for them at a distance of 200 miles, where the sealers lie in wait for them.

For this reason the protection of the fur seal to-day lies in the hope of tempestuous weather in the month of August; since two or three weeks of good weather at this time, permitting the sealers to operate without interruption, means the ultimate destruction of the seal herd on the Pribilof Islands.

OCTOBER 7, 1894.

REPORT

ON

THE RUSSIAN FUR-SEAL ISLANDS.

BY

LEONHARD STEJNEGER,
Of the United States National Museum.

THE RUSSIAN FUR-SEAL ISLANDS.[1]

By LEONHARD STEJNEGER,
Of the United States National Museum.

I.—INTRODUCTION.

The following treatise is based upon observations gathered during two different visits to the Commander Islands, off the coast of Kamchatka, the first undertaken in 1882–83, during the palmiest days of the fur-seal industry, the latter being last year (1895), as a special attaché of the United States Fish Commission, to study the recent decline and to compare the conditions as I knew them thirteen years ago with those of the present day.

I undertook the trip with a full understanding of the difficulties awaiting me, both in the studies in the field and in the working up of the report. I was fully aware that, alone in an almost untrodden field, my work would of necessity be fragmentary and for that reason unsatisfactory. Nevertheless, I felt that I ought to do it, for several reasons. In the first place, I was in possession of a great amount of interesting information about the Russian seal islands never published, or else very inaccessible to those concerned in the fate of the fur seal, which it might be useful to bring together. In the second place, I felt convinced that but few men were in the same fortunate position as myself of having had the opportunity to study the Russian fur-seal industry at close quarters while it was still flourishing, and that, consequently, I was in an exceptionally good position for instituting the desired comparison.

Finally, I reflected, having kept aloof from all the strife and controversy of recent years concerning seal matters, because I had no pet theories of my own to ventilate nor any personal interest of myself or friends to advance, I would be less liable to suspicion of being prejudiced or biased by any outside motive. I have earnestly endeavored to preserve this independence, personal and scientific, in the investigations which I have undertaken, and I claim that the conclusions I have reached are based upon the facts as I have been able to discern them. It is my hope that the logic of my deductions will not be found lacking.

SCOPE OF THE WORK.

At the suggestion of Mr. Richard Rathbun, in charge of the scientific inquiry of the Fish Commission, and with the approval of the Acting Commissioner of Fisheries, Mr. Herbert A. Gill, the scope of the report was extended so as to include all other obtainable information concerning the Russian seal islands, and it has thus assumed somewhat the character of a monograph. But I wish it distinctly understood that

[1] Extracted from United States Fish Commission Bulletin for 1896.

it does not pretend to exhaust the subject in any direction. Some of the chapters are only brief résumés, thus causing great inequality in the treatment of the various questions. This could not well be otherwise, for it would have been manifestly impossible to prepare a work of that scope, with all the labor and research it involves, in the short time of three and a half months which I have had at my disposal for writing this treatise. Moreover, such an exhaustive work could not be done here in Washington or even in this country. It would have been necessary to consult records and archives in San Francisco and in St. Petersburg, as well as the libraries in the latter city.

In preparing this work I have had the hearty cooperation of the authorities of the United States Fish Commission, and I wish particularly to express my grateful appreciation of the truly scientific spirit and liberality shown by Mr. Rathbun in giving me every possible latitude for working out the problems in my own fashion without attempting to influence my opinion in any direction. His only injunction to me has been a desire for the facts as I have seen them. It has been my endeavor to supply them to the best of my ability.

ITINERARY.

My first visit to the Commander Islands was undertaken in March, 1882, under the joint auspices of the Smithsonian Institution and the United States Signal Service. With a notice of only two days, I left Washington on March 22, 1882, and sailed from San Francisco in the *Aleksander II* the following April 5, landing on Bering Island a month later—on May 7. During the summer I studied the fur seals and rookeries on this island. In the fall of 1882 I undertook a circumnavigation of Bering Island in open boat, returning to the village after a successful trip of two weeks. The winter was passed on Bering Island, but part of the following summer, particularly the sealing season, I spent on the various rookeries of Copper Island. In October, 1883, I took passage in the *St. Paul* from Petropaulski, Kamchatka, to San Francisco, arriving in Washington the following November 26. The results of this trip have been published in numerous memoirs and papers, mostly issued by the United States National Museum.

The itinerary of my trip in 1895 is as follows: After receiving my appointment on May 21, I left Washington on May 28 with letters from the Russian legation, authorized telegraphically by the authorities in St. Petersburg, and arrived in San Francisco on Sunday, June 2. Various preparations for the journey occupied me until June 6, when I sailed in the steamship *Bertha* for Unalaska. In this port I was to join the Fish Commission steamer *Albatross*, which, it was calculated, would have returned to Unalaska from its first trip to the Pribilof Islands at the time I was due there. In such an event Captain Drake had orders to bring me to Bering Island via the Pribilofs, in order to afford me an opportunity to witness and compare the mode of driving the seals on both groups. Upon my arrival at Unalaska on June 17 I found, however, that the *Albatross* had only arrived there the day before, without having as yet been to the Pribilofs. The following week was consumed in Unalaska taking in coal. The *Albatross* left Unalaska on June 23, and on June 25 we were landed at the village, St. Paul Island. The rookeries near the village were inspected the same afternoon.

Thanks to the zeal and courtesy of the Treasury agent, Mr. J. B. Crowley, and the company's general agent, Mr. J. Stanley-Brown, a small drive of seals was at once arranged for the following morning.

Mr. F. W. True, of the United States National Museum, and I partook in the drive, which lasted from 2 o'clock in the morning to 10 a. m. At 1 p. m. I embarked again on the *Albatross* and steamed at once away for Bering Island; anchored off the main village on July 3, and on the 4th, with Captain Drake and Mr. C. H. Townsend, went per dog sledge to the great North Rookery. After having landed my effects, the *Albatross* left on the following day.

My next trip to the North Rookery was per boat, in company with Governor Grebnitski, on July 7. On July 15 I again proceeded to the same rookery in dog sledge, returning to the main village by the same means July 20. Bad weather prevented the carrying out of my intentions of visiting the South Rookery at this time. On July 27 I took passage on the Russian Seal Skin Company's steamer *Kotik*, Capt. C. E. Lindquist, for Copper Island, and on July 30, in company with the governor, Mr. Grebnitski, who bore the expense of the trip, started from the main village on an open-boat expedition around the island. Spent the evening and the next morning at the sea-otter rookery. July 31 and August 1 were devoted to inspecting and photographing the Karabelni rookeries, and August 2 to 11 to the Glinka rookeries, the latter being the more important ones, finishing the circumnavigation August 12. On the steamer *Kotik* I then returned to Bering Island, anchoring off the North Rookery August 13. Visited the South Rookery August 17, securing photographs and a map of the rookery. On August 18 I called on board the British cruiser of the third class, *Porpoise*, Commander Francis R. Pelly (doing patrol service on the 30-mile limit), then at anchor off Nikolski. On August 21 I went in dog sledge to the North Rookery, returning two days later. The captain of the *Porpoise* having kindly offered to take me to Petropaulski, I gladly accepted his offer, as it was somewhat doubtful whether the *Kotik*, in which I intended to return to San Francisco, would be able to call at the islands before going home, and I did not dare to risk the possibility of wintering on Bering Island. I arrived in Petropaulski August 25. The company's agent having decided to make another trip to the islands, I returned in the *Kotik* and was thus enabled to again inspect the Bering Island South Rookery on September 9 and the North Rookery September 16, being back in Petropaulski September 18, which port I left on September 24 in the *Kotik*, bound for San Francisco, where I arrived on October 11.

The weather was unprecedentedly stormy and rainy during my entire stay at the islands and interfered greatly with my work. The great distances between the habitations and the rookeries and the primitive means of transportation also added to the difficulties, while much valuable time was lost owing to the uncertainty of the movements of the steamer.

Under such adverse circumstances I should have been unable to accomplish even what I did had it not been for the kind assistance I received on all sides.

ACKNOWLEDGMENTS.

In the first place it gives me great pleasure to acknowledge the aid and courtesies received at the hands of Governor N. Grebnitski, the administrator of the islands, without which I should have been seriously embarrassed in my work. The following report would undoubtedly have been more replete with official data and statistics relating to the sealing industry on the islands had not the documents relating thereto been either sent away already or packed ready for shipment in anticipation of Mr. Grebnitski's prospective departure for St. Petersburg.

I am also under great obligations to the firm and officers of the Russian Seal Skin Company, the present lessees of the islands, especially Mr. C. A. Williams, New London, Conn., and Mr. Thomas F. Morgan, Groton, Conn., as well as Mr. Constantine M. Grunwaldt, of St. Petersburg, at present the representative of the firm on the Pacific Coast; Mr. John Malovanski, of San Francisco, the general agent of the company; Capt. C. E. Lindquist, of the *Kotik;* Capt. D. Grœnberg, of the *Bobrik;* Mr. Kluge, the resident agent on Bering Island, and Mr. Cantor, on Copper Island.

It would be ungrateful not to mention the hospitality received from the Alaska Commercial Company and its functionaries, especially during my first visit to the islands. The liberality with which the members of this firm have been ever ready to assist scientific endeavors has contributed greatly to the success of my undertakings.

To Lieut. Commander F. J. Drake, U. S. N., commanding the United States Fish Commission steamer *Albatross*, and his officers, and to the scientific staff of the vessel, and more particularly to Mr. C. H. Townsend, special thanks are due for courtesies during my stay on board, and to the latter for valuable information received during the preparation of this report, due credit for which is given in each instance.

It is with great pleasure that I acknowledge my obligations to the captain of H. M. S. *Porpoise*, Commander Francis R. Pelly, R. N., and his officers, for hospitalities and for aid in transportation.

Finally, I wish to express my appreciation of the willingness and promptness with which my desire to witness a seal drive on St. Paul Island was gratified by the Treasury agent, Mr. J. B. Crowley, and by Mr. J. Stanley-Brown, the general agent of the North American Commercial Company, the present lessees of the Pribilof Islands.

II.—THE RUSSIAN SEAL ISLANDS.

Until the purchase of the Territory of Alaska by the United States, in 1867, all the resorts of the northern fur seal north of California belonged to the Russian Empire, and the fur-seal industry of the North Pacific was entirely monopolized by the Russian American Company.

These resorts were in all instances uninhabited islands, and at the time of their discovery by the Russian fur hunters, in the middle and latter part of the last century, even unknown to the native races. The seals when first found on the rookeries, about one hundred and fifty years ago, had never been interfered with by man while on their breeding grounds. The islands alluded to were the Commander group, certain small islands in the Okhotsk Sea, certain small islands in the Kuril chain, and the Pribilof group.

In 1867 the Pribilof Islands were sold to the United States, and in 1870 Russia ceded the Kurils to Japan in exchange for the southern half of the island of Sakhalin. There remain thus, in the possession of the Russian Crown at the present date, only the Commander Islands and the islands in the Okhotsk Sea.

1.—The Commander Islands.

The Commander Islands (also occasionally called the Commodore Islands; Russian, *Komandorski Ostrova*), so named in memory of the great commander, Bering, who discovered the group, comprise two main islands, Bering and Copper, situated off the east coast of Kamchatka, between 54° 33′ and 55° 22′ north latitude, and 165° 40′ and 168° 9′

east longitude, approximately 97 miles from Cape Kamchatka, the nearest point on the mainland. The southeast point of Copper Island is distant from Attu, the nearest American island, about 180 miles, and is less than 75 miles from the imaginary boundary line across Bering Sea between Russia and the United States. The distance between Bering Island and the port of Petropaulski is somewhat more than 280 miles, while a straight line between the nearest points of the Commander group and the Pribilof group is 750 miles. The steamer's track between the former and San Francisco is something like 3,100 miles.

Geographically the Commander Islands are the westernmost group of the Aleutian chain. Politically, however, they form a separate administrative district of the so-called Coast Province (*Primorskaya Oblast*). This enormous territory extends from Korea to the Arctic Ocean, and, including the peninsula of Kamchatka, is ruled by the governor-general of the Amur Province, residing at Khabarovka, on the Amur River, more than 1,200 miles, as the crow flies, from the Commander Islands. The administrative position of these islands, however, is somewhat complicated, inasmuch as they also depend directly under the minister of the imperial domain in St. Petersburg, 4,600 miles away. In other words, their position corresponds very much to that of our Pribilof Islands, which are subject both to the governor of Alaska and to the Secretary of the Treasury.

The Commander Islands were discovered on November 4, 1741 (old style). On that day the vessel *St. Peter*, with the commander, Vitus Bering, and nearly the entire crew, sick to death with the scurvy, slowly approached the southern extremity of Copper Island from the east, on their return voyage, after having discovered the mainland of America. Owing to the universal sickness, the ship's reckoning was entirely out, and the officers believed themselves off the coast of Kamchatka. The next day the vessel, over which the exhausted crew had hardly any control, drifted toward the east shore of Bering Island, and in the night following, a beautiful, still November night, of which this coast knows but few, the unfortunate craft came pretty near being left by the receding tide and wrecked on the projecting reefs at the southern entrance to the little bay called Komandor on the map (plate 4). By an exceptional piece of good luck, the breakers carried it safely over the rocks into the basin beyond, and a landing was effected.

To such extremity were the discoverers reduced that it was decided to winter on this inhospitable shore. Hollows were dug in the ground for shelter and covered with skins of wild animals and sails. Many of the crew died of the scurvy, and on the 8th of December (old style) Bering himself. He was buried near the place marked on the map "Bering's grave." The others, 46 only out of 77, recovered slowly under the care of G. W. Steller, who accompanied the expedition as a naturalist. The vessel was thrown up on the beach during a heavy gale in the night between November 28 and 29 (old style), and all attempts to float it were in vain. The next spring, after a winter full of suffering and privations, the crew broke up the old vessel and of the materials built a smaller one, in which they landed at Petropaulski, Kamchatka, August 27, 1742.

The present writer visited the place of the shipwreck and the wintering August 30, 1882, and has given an account of it, with a ground plan of the hut and a sketch map of the locality, in Deutsche Geogr. Blätter, 1885, pages 265–266. A partial rendering of this is found in Prof. Julius Olsen's translation of Lauridsen's "Vitus Bering" (Chicago, S. C. Griggs & Co., 1889), page 184, and additional notes, pages 214, 215.

The relics of the expedition found by me are deposited in the United States National Museum.

HYDROGRAPHIC NOTES.

It is astonishing how very little is definitely known about the hydrography of the western side of Bering Sea. But few vessels fitted for such work have visited that part of the world of late years, and those few have only made hurried passages through. In that way a small amount of material has been accumulated, which has been utilized by the Russian admiral, S. O. Makarof, in his interesting work "Vitiaz i Tikhi Okean" (2 volumes, St. Petersburg, 1894), in which, so far as the investigations relating to temperature and specific gravity of the waters of the western Bering Sea are concerned, his own observations on board the corvette *Vitiaz* form the most valuable part. This being the case, I have no hesitation in presenting, in a brief abstract, the substance of those paragraphs in his book which refer to the matter in hand, especially since a full understanding of the phenomena in question is a necessary basis for an equally full understanding of the distribution of the food animals of the seals and of the seals themselves.

On July 29, 1888, the *Vitiaz* left Petropaulski on a short trip to the Commander Islands. The bathymetric observations in Bering Sea have shown that the bed of warm water of a temperature of + 9° C. is very thin near the coasts of Kamchatka. At a depth of 10 meters a temperature of + 2.3° C. is found, and at 25 meters only + 0.6°. Near the Commander Islands, with the same surface temperature of + 9° C., + 7.1° was found at 25 meters and + 4.3° at 50 meters. We have here absolutely the same phenomenon as in the Japan Sea, viz., that the cold water predominates in the lower beds of the western portion of the sea. The identical phenomenon has been observed in the Okhotsk Sea and the Straits of Tartary.

The bathymetric observations in Bering Sea, at stations Nos. 108, 109, 110, and 113, have established another peculiarity of this sea, viz, the presence in the deeper portions of warm water of high salinity. Near the coast of Kamchatka the increase in temperature is shown as follows: At station No. 108, from 0° C. at 200 meters to + 3.5° C. at 400 meters; at station 109, from + 0.6° C. at 150 meters to + 2.6° C. at 175 meters and + 3.7° C. at 200 meters; at station 110, in longitude 165° 56′ E., at a depth of 100 meters a temperature of + 2° C. was found, and at 150 meters and below, + 3.9° C. The details are shown in the accompanying diagram (pl. 3).

These temperatures prove to us that the bed of warm water of great specific gravity is found nearer the surface at the Commander Islands than along the coast of Kamchatka. A similar phenomenon has also been observed in the Okhotsk Sea. In other words, the cold and less saline water in descending from north to south approaches the coast toward the western side of the sea and forces the warm water of high salinity to a greater depth.

Plate 3 shows a section of Bering Sea from the coasts of Kamchatka to the Commander Islands. The cold water here occupies an intermediate bed between the surface and a depth of 250 meters. As in the Okhotsk Sea, the bed thickens toward the mainland coast and tapers off as it recedes from it. It will also be seen that this cold water, with a temperature lower than 0° C., has a specific gravity of 1.0252 to 1.0254. Where does this water come from? Makarof concludes that as it can not come from the Pacific Ocean, which has no such temperature, it

must descend from the surface. Since the surface water has a specific gravity of only about 1.0250, he suggests that the great salinity of this surface water is due to freezing in winter. As to the route this water follows, he believes that, as indicated by the temperatures observed by the *Tuscarora*, it advances from the southwest along the coast of Kamchatka and consequently also along the Kuril Islands.

The surface temperatures of the western portion of Bering Sea are indicated on plate 2, showing the existence of two cold zones, viz, one near Capes Tchaplin and Tchukotski, the other between Capes Navarin and St. Thaddæus. Everywhere else the cold water occupies the western part of Bering Sea and the warm water its eastern portion. In the other places the distribution of the temperature is pretty regular; it decreases gradually toward the north. The temperature near Petropaulski is 11° C., and near the island of St. Lawrence about 8° C., i. e., the mean temperature of August.

Fragmentary as is our knowledge of the waters themselves in the western portion of Bering Sea, the bottom of the sea over which they flow is hardly better known. In fact, until the United States Fish Commission steamer *Albatross* ran the three lines of deep-sea soundings in 1892 and 1895, the shape and nature of the bottom were even less known. Even to-day we do not know the depth of the passage between Kamchatka and the Commander Islands. The Russian and English men-of-war patrolling the seas around the islands have of late years added a number of soundings at 100 fathoms and under, so that it has been possible on the appended map (pl. 1) to trace the 100-fathom line with some degree of accuracy, but not even Makarof in the *Vitiaz* seems to have been provided with an apparatus fit to take soundings deeper than 400 fathoms. The soundings which he made in the passage alluded to, therefore, only prove that it is deeper than 400 fathoms, but how much we are unable to say. True, we find on the Russian hydrographic department chart No. 1454 (Vost. Okean, Bering, Mor.) two definite soundings, viz, 390 fathoms in 53° 41′ north latitude and 163° 29′ east longitude, but this being station No. 109 of the *Vitiaz*, and therefore in all probability taken from its records, we find upon turning to the latter that bottom was not found at 713 meters, or 390 fathoms. The other sounding on the same chart is 400 fathoms in 54° 45′ north latitude and 162° 50′ east longitude. By examining the records of the *Vitiaz* we find no soundings taken by that vessel in that latitude, but we find, on the other hand, that station No. 113 was in 53° 45′ north latitude and 162° 50′ east longitude, and that a sounding was there taken with the result that bottom was not touched in 732 meters, or 400 fathoms. The above figures are too close not to make it almost absolutely certain that by a clerical error the sounding in question was platted a whole degree too far north and the dash with the dot over left out.

In the chart of the western portion of Bering Sea, which I have prepared and appended herewith (pl. 1), the 100-fathom curve around the Commander Islands is drawn for the first time with some pretensions to accuracy. Even in some recent publications it is asserted that the Commander Islands "belong to the Kamchatka system, Copper Island resting just within the 100-fathom curve from the Asiatic coast." On the contrary, we know now that the sea between the mainland and the islands is over 400 fathoms deep. On my map they are connected with the peninsula of Kamchatka by the 500-fathom curve, but even that is only conjectural, though probable. The deep-sea soundings of the *Albatross* are here first shown on any map of the region, as well as the curves connecting them with the *Tuscarora* soundings of 1874. It will

thus be seen that nearly all our knowledge of the bottom in this part of the sea is due to ships belonging to the United States.[1]

The curves of the various depths from 100 fathoms down to 2,000 fathoms and over are, as a matter of necessity, highly conjectural. In the northeastern section of the map they appear even somewhat problematical, in view of the fact that a series of shallow soundings running southwest from Cape Oliutorski, on the charts of the United States Hydrographic Office, have been left out of consideration altogether. The reason is that the series is crossed by the deep soundings of the *Albatross* on her return passage from the Commander Islands in 1895 in such a manner that it is impossible to reconcile them. They may possibly belong farther west—a not unreasonable supposition, since the determination of the longitude of the various coasts and promontories in that part of the world is in such utter confusion[2] that a resurvey of the whole coast from Petropaulovsk to Providence, or Plover, Bay is imperatively demanded.

Nevertheless, in all this uncertainty, the following points may now be regarded as fairly well established:

(1) The Commander Islands are situated on the extreme eastern point of a plateaulike ridge having a probable average depth of about 500 fathoms and extending eastward from the coast of Kamchatka.

(2) This plateau, upon which the Commander Islands are located, rises very abruptly from an ocean floor of a little more than 2,000 fathoms, so that the islands themselves on their northern and eastern sides rise nearly perpendicular out of this depth.

(3) Between the Commander Islands and Attu, the nearest of the American Aleutian Islands, there is a gap certainly more than 1,900 fathoms deep. Whether the *Albatross* maximum sounding of 1,996 fathoms, only a short distance from the south end of Copper Island, is really the maximum depth, thus indicating a slightly elevated ridge between the floor of the Bering Sea and the so-called *Tuscarora* deep, or whether there may not be a channel of 2,100 fathoms, or thereabouts, on one side of the sounding in question, remains to be seen.

(4) The bottom of Bering Sea to the east of the Commander Islands forms a nearly level floor of an almost uniform depth of 2,100 fathoms, sending off an arm, or bay, of equal depth to the north of the islands toward the neck of the Kamchatkan Peninsula. The walls of this basin are excessively steep at the islands, but are believed to slope off gradually toward the curve of the coast between Capes Oserni and Oliutorski.

To complete the account I append the records of the soundings taken by the *Albatross* and the *Vitiaz* in the waters covered by the map (pl. 1).

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[1] I find on Berghaus's "Chart of the World on Mercator's Projection" a sounding of 2,700 fathoms indicated in (approx.) latitude 56° 40′ north and longitude 168° 20′ east, the authority for which I am ignorant of. It is situated almost in a line between the 1895 *Albatross* soundings of 2,137 and 1,866 fathoms, and if correct would indicate a depression below the general level of about 2,100 fathoms in that part of Bering Sea.

[2] Witness the fact that the various charts of the region for more than ten years have borne the following inscription: "The coast of Kamchatka north of Cape Kozlof is reported to be charted 15 miles too far east." Yet nothing has been done to clear up the doubt.

Records of recent soundings in the western portion of Bering Sea.

Hydro. station.	Date.	Time.	N. lat.	E. long.	Depth.	Bottom.	Vessel.
	1888.		° ′ ″	° ′ ″	*Fth'ms.*		
107	July 29	4 p. m.	52 58 0	160 02 0	49		Vitiaz.
108	July 29	6.40 p. m.	53 02 0	160 16 0	438		Do.
109	July 30	9 a. m.	53 41 0	163 29 0	390		Do.
110	July 30	8.15 p. m.	54 15 0	165 56 0	300		Do.
111	July 31	8.37 p. m.	54 39 0	166 35 0	55		Do.
112	Aug. 1	2.30 p. m.	55 02 0	165 15 0	109		Do.
113	Aug. 2	4.30 a. m.	53 45 0	162 50 0	400		Do.
	Aug. 2	4 p. m.	52 55 0	160 14 0	175		Do.
	1892.						
3231	May 29	10.40 p. m.	53 13 0	172 38 0	1,447	yl. M. fne. S	Albatross.
3232	May 30	5.43 a. m.	53 38 0	171 28 0	1,818		Do.
3233	May 30	11.35 a. m.	54 02 0	170 17 0	1,853	fne. bk. S	Do.
3234	May 30	6.12 p. m.	54 19 0	169 03 0	1,996	yl. M. S	Do.
3235	May 31	12.03 a. m.	54 30 0	168 07 0	47	fne. gy. S	Do.
3236	May 31	1.34 p. m.	55 09 0	165 51 0	25	rky	Do.
3237	May 31	3.10 p. m.	55 10 0	165 47 0	33	rky. M	Do.
3238	May 31	4.33 p. m.	55 08 0	165 48 0	36	gy. S	Do.
3239	May 31	5.34 p. m.	55 10 30	165 45 0	32	do	Do.
	1895.						
3546	June 30	3.04 p. m.	55 59 0	178 43 0	2,105	br. M. oz	Do.
3547	June 30	10.25 p. m.	55 55 0	177 12 0	2,113	do	Do.
3548	July 1	7.05 a. m.	55 52 0	175 25 0	2,120	do	Do.
3549	July 1	4.35 p. m.	55 53 0	173 53 0	2,111	do	Do.
3550	July 2	2.37 a. m.	55 50 0	171 57 0	2,096	do	Do.
3551	July 2	10.20 a. m.	56 00 0	169 46 0	2,154	do	Do.
3552	July 2	4.58 p. m.	56 00 0	168 16 0	2,153	do	Do.
3553	July 2	11.07 p. m.	55 58 0	166 48 0	2,119	gy. S. M	Do.
3554	July 3	2.21 a. m.	55 43 0	166 15 0	2,090	do	Do.
3555	July 3	5.14 a. m.	55 25 0	165 46 0	70	do	Do.
3556	July 3	6.34 a. m.	55 16 0	165 32 30	20	ors. S. rky	Do.
3557	July 3	7.10 a. m.	55 12 0	162 38 0	35	gy. S	Do.
3558	July 3	7.31 a. m.	55 11 0	165 40 0	37	do	Do.
3559	July 3	8.04 a. m.	55 11 20	165 46 20	15	rky	Do.
3560	July 5	12.22 p. m.	55 25 30	165 48 0	144	fne. gy. S	Do.
3561	July 5	12.49 p. m.	55 27 0	165 49 0	66	rky	Do.
3562	July 5	1.17 p. m.	55 28 30	165 51 30	341	gy. S. M	Do.
3563	July 5	2.20 p. m.	55 32 0	165 56 30	1,087	S	Do.
3564	July 6	1.17 a. m.	56 25 0	167 52 0	2,137	gr. oz	Do.
3565	July 6	7.15 a. m.	56 56 0	169 06 0	1,866	bl. M. oz	Do.
3566	July 6	12.01 p. m.	57 16 0	169 41 0	972	do	Do.
3567	July 6	2.29 p. m.	57 29 0	170 09 0	410	gy. S. M	Do.
3568	July 6	4.15 p. m.	57 35 0	170 24 0	537	br. oz. G	Do.
3569	July 6	6 p. m.	57 41 0	170 39 0	609	br. oz. S	Do.
3570	July 6	7.22 p. m.	57 47 0	170 54 0	540	gn. oz. G	Do.
3571	July 6	8.44 p. m.	57 53 0	171 09 0	696	gn. M. oz	Do.
3572	July 11	12.37 a. m.	58 18 0	171 51 0	1,469	do	Do.
3573	July 11	5.05 a. m.	58 36 0	172 47 0	1,898	hard	Do.
3574	July 11	10.55 a. m.	58 23 0	174 17 0	1,978	bl. M. oz	Do.
3575	July 11	5.04 p. m.	58 12 0	175 49 0	2,041	br. M. oz	Do.
3576	July 11	11.07 p. m.	58 01 0	177 21 0	2,068	do	Do.

METEOROLOGY.

The climate of the Commander Islands, in spite of their vicinity to Kamchatka, is not particularly severe, but the excessive moisture and the low summer temperature make it rather disagreeable, though by no means unhealthy. The chief interest centers in the temperature, the moisture, precipitation, and cloudiness for the months of May to November, inclusive, during which time the fur seals stay on the islands. But as the meteorological observations made on the islands have never been published in full, or collectively, I have appended a set of tables of the monthly means for the four years during which the United States Signal Service maintained a station at Nikolski, Bering Island.

One of the objects of my trip to the Commander Islands in 1882 was to establish meteorological stations there and in Petropaulski. The

village at Copper Island was found unsuitable for the purpose and no regular observations were taken there. At Nikolski, however, I established and maintained during my entire stay a three-daily station, beginning May 22, 1882. During my sojourn there I trained the late Mr. George Chernick, agent of Hutchinson, Kohl, Philippeus & Co., in the use of the instruments, so that whenever I was absent from the station exploring, collecting, or investigating the rookeries, he took the observations. At my departure he was appointed a United States Signal Service observer, whose duties he conscientiously fulfilled until his resignation in April, 1886, at which time the station was abandoned.

The observations were taken simultaneously with those in Washington, D. C., viz, at 7 a. m., 3 p. m., and 11 p. m., Washington time, or, respectively, 11.12 p. m., 7.12 a. m., and 3.12 p. m., local time.

The instruments used were as follows:

A mercurial barometer, United States Signal Service, No. 1837.
An exposed thermometer, No. 939.
A minimum thermometer, No. 648.
A maximum thermometer, after June, 1883.
A wet-bulb thermometer, for determining the relative humidity, after June, 1883.
A Robinson's anemometer.
A wind vane, belonging on the island.
A Signal Service standard rain gauge.

The barometer cistern was 20 feet above sea level.

The thermometers were hung in a large lattice box on the north side of my house, the box covering the window, and the instruments were read through the latter from the inside.

The rain gauge[1] had to be located very high (9 feet) and in an exposed place to keep it from the marauding sledge dogs. This instrument was not satisfactory in a high wind. The wind in blowing across the mouth of the funnel would actually suck the air out of the latter, thus preventing the rain or snow from entering. Many a time after a considerable rain I have found the rain gauge dry inside. The actual amount of precipitation is therefore greater than shown in the table given below, though the figures in the latter may serve for comparison with those from similar localities in the United States, particularly on the Pribilof Islands and in Alaska, where the same kind of rain gauge was in use.

The following tables I have transcribed directly from the original records. The monthly means are those of the means of the three-daily observations. The method of observing, correcting, and tabulating is that in vogue in the Signal Service, and the figures are strictly comparable with those of the other stations of the same service.

[1] Report Chief Sig. Off. 1887, II, p. 282, pl. XXXVI, fig. 97.

Monthly means of meteorologic observations made by Leonhard Stejneger and George Chernick at Nikolski, Bering Island, from May, 1882, to April, 1886, inclusive.

MEAN MONTHLY BAROMETER.

[Corrected for temperature and instrumental error only. Elevation of barometer, 20 feet above sea level. Centr. gravity, + 0.030.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	*29.805	29.738	29.720	29.827	29.842	29.807	29.660	29.524
1883	29.392	30.053	29.784	29.846	29.783	29.752	29.837	29.816	29.775	29.603	29.817	29.512
1884	29.565	29.540	29.579	29.744	29.811	29.938	29.721	29.785	29.947	29.747	29.355	29.560
1885	29.397	29.848	29.905	29.730	29.705	29.693	29.840	29.766	29.882	29.765	29.750	29.612
1886	29.517	29.794	29.781	29.600	.....	.....	.....	.....	.....	.....	.....	.....

* Mean of 10 observations.

MEAN TEMPERATURE.

[The mean temperature was obtained by adding together the observations made at 7.12 a. m., 3.12 p. m., and 11.12 p. m., local time, and dividing by 3.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1882	.....	.....	.....	.....	*39.7	42.7	48.2	54.1	50.5	38.8	28.7	27.0
1883	25.5	28.7	25.2	28.6	35.3	41.7	45.9	51.9	45.2	38.0	31.4	28.8
1884	25.9	28.9	28.3	30.7	36.6	42.2	48.1	49.5	45.9	37.4	31.1	26.4
1885	26.9	25.7	27.4	27.7	35.1	41.9	46.2	48.3	45.6	34.8	29.9	26.9
1886	27.4	27.0	27.2	30.7	.....	.....	.....	.....	.....	.....	.....	.....
Means	26.4	27.6	27.0	29.4	35.7	42.1	47.1	51.0	46.8	37.2	30.3	27.3

* Mean of 10 observations, May 22 to 31, not included in the means.

Annual means: 1883, 35.5; 1884, 35.9; 1885, 34.7.

MAXIMUM TEMPERATURE.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1882	.....	.....	.....	.....	.....	.....	.....	.....	.....	*48.0	*40.3	*39.1
1883	*33.0	*38.0	*33.9	*38.0	*56.0	50.5	57.5	63.0	57.0	49.1	42.9	40.7
1884	36.6	36.8	38.9	39.5	45.4	53.5	62.7	55.7	56.0	49.9	38.2	37.0
1885	36.1	43.4	36.0	39.8	48.5	56.6	62.9	57.1	53.6	51.0	44.0	38.0
1886	37.0	38.0	37.0	39.0	.....	.....	.....	.....	.....	.....	.....	.....

* Highest exposed.

Highest: 1883, August 23, 63.0; 1884, July 19, 62.7; 1885, July 24, 62.9.

MEAN MAXIMUM TEMPERATURE.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1883	.....	.....	.....	.....	.....	*46.1	51.0	56.9	49.6	43.1	35.8	33.1
1884	29.8	32.4	32.6	35.3	41.5	47.3	52.8	53.5	51.0	41.6	34.8	30.3
1885	30.8	30.7	30.7	31.5	39.1	46.8	51.6	52.4	49.4	39.2	34.4	30.5
1886	30.7	30.2	31.3	35.1	.....	.....	.....	.....	.....	.....	.....	.....

* Mean of 28 observations.

NUMBER OF DAYS OF MAXIMUM THERMOMETER BELOW 32°.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1883	.....	.....	.....	.....	.....	0	0	0	0	0	8	12
1884	17	11	14	4	0	0	0	0	0	0	4	17
1885	17	15	18	16	1	0	0	0	0	0	10	20
1886	17	17	13	5	.....	.....	.....	.....	.....	.....	.....	.....
Means	17.0	14.3	15.0	8.3	0.5	0.0	0.0	0.0	0.0	0.0	7.3	16.8

Total: 1884, 67 days; 1885, 97 days.

Monthly means of meteorologic observations, etc.—Continued.

MINIMUM TEMPERATURE.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1882	.....	.....	.....	.....	.....	31.3	39.4	44.6	35.3	17.6	9.8	−1.4
1883	3.3	10.8	11.2	5.3	25.8	33.4	34.6	39.5	31.3	24.5	15.5	[illegible]
1884	6.3	9.5	12.2	0.6	27.4	31.5	37.3	38.2	30.4	22.4	12.4	[illegible]
1885	3.4	3.0	0.9	4.5	22.5	31.2	36.2	37.2	34.2	17.9	6.9	12.4
1886	5.0	15.0	13.0	13.0	.....	.....	.....	.....	.....	.....	.....	.....

Lowest: 1882, −1.4 December 21; 1883, 3.3 January 6; 1884, 0.6 April 1; 1885, 0.9 March 17.

MEAN MINIMUM TEMPERATURE.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1882	.....	.....	.....	.....	.....	38.6	45.0	50.7	44.5	33.7	23.5	21.6
1883	20.9	24.6	21.1	24.0	*29.4	37.6	36.1	48.3	41.3	33.0	27.8	22.8
1884	21.2	24.0	24.1	26.2	32.5	38.0	43.8	46.0	40.2	32.6	26.5	20.9
1885	21.7	20.1	23.1	21.9	32.0	38.2	42.9	44.9	42.1	29.6	24.8	22.1
1886	23.8	24.6	23.8	27.9	.....	.....	.....	.....	.....	.....	.....	.....

* Mean of 29 observations.

NUMBER OF DAYS OF MINIMUM THERMOMETER BELOW 32°.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	1	0	0	0	11	26	28
1883	31	26	30	27	11	0	0	0	1	15	23	30
1884	31	26	31	26	13	1	0	0	1	10	24	31
1885	30	26	30	26	11	1	0	0	0	21	25	29
1886	30	25	29	27	.....	.....	.....	.....	.....	.....	.....	.....
Means	30.5	25.8	30.0	26.5	11.7	0.8	0.0	0.0	0.5	14.2	24.5	29.5

Total: 1883, 194 days; 1884, 194 days; 1885, 199 days.

NUMBER OF CLEAR DAYS.

[A "clear" day has no clouds, or less than 0.3 clouds.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	0	0	3	4	0	1	0
1883	0	5	0	0	0	0	0	0	3	0	0	0
1884	0	0	0	0	0	0	1	0	3	0	1	0
1885	0	0	0	0	0	4	2	3	0	0	0	0
1886	0	0	0	0	.....	.....	.....	.....	.....	.....	.....	.....
Means	0	1.2	0	0	0	1	0.8	1.5	2.5	0	0.5	0

Total number of clear days: 8 in 1883; 5 in 1884; 9 in 1885; annual mean, 7.

NUMBER OF FAIR DAYS.

[A "fair" day has from 0.3 to 0.7 clouds.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	5	5	19	11	17	12
1883	8	6	8	7	4	4	7	10	12	13	5	14
1884	2	5	6	8	4	6	5	1	16	12	8	10
1885	4	4	4	6	16	7	18	11	6	13	12	0
1886	8	5	7	7	.....	.....	.....	.....	.....	.....	.....	.....
Means	5.5	5.0	6.2	7.0	8.0	5.7	8.8	6.8	13.2	12.2	10.5	11.3

Total number of fair days: 98 in 1883; 83 in 1884; 110 in 1885; annual mean, 97.

Monthly means of meteorologic observations, etc.—Continued.

NUMBER OF CLOUDY DAYS.

[A "cloudy" day has from 0.8 to 1.0 clouds.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	26	23	7	20	12	19
1883	23	17	23	23	27	26	24	21	15	18	25	17
1884	29	24	25	22	27	24	25	30	11	19	21	21
1885	27	24	27	24	15	19	11	17	24	18	18	22
1886	23	23	24	23	.....	.....	.....	.....	.....	.....	.....	.....
Means	25.5	22.0	24.8	23.0	23.0	23.0	21.5	22.8	14.2	18.8	19.0	19.8

Total number of cloudy days: 259 in 1883; 278 in 1884; 246 in 1885; annual mean, 261.

NUMBER OF FOGGY DAYS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	9	10	0	0	0	0
1883	0	0	0	0	2	3	9	10	2	0	1	0
1884	0	0	0	0	0	0	2	0	0	0	0	0
1885	0	0	0	0	0	1	2	1	0	0	0	0
1886	0	0	0	0	.....	.....	.....	.....	.....	.....	.....	.....
Means	0	0	0	0	0.7	1.3	5.5	5.2	0.7	0	0.2	0

CLOUDINESS, EXPRESSED IN PERCENTAGES.

[The percentage of cloudiness was obtained from the eye estimates of the observer, recorded on a scale of 0 to 10 at each observation. The mean of the three-daily observations was used as the mean for the day; 100 per cent represents sky completely overcast.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	93	83	60	79	73	78
1883	86	72	86	84	90	92	89	85	73	74	77	78
1884	91	89	88	79	87	81	66	87	65	79	83	81
1885	88	86	90	86	75	75	63	73	86	76	77	80
1886	84	86	86	81	.....	.....	.....	.....	.....	.....	.....	.....

Annual means: 82 in 1883; 81 in 1884; 80 in 1885.

PERCENTAGE OF RELATIVE HUMIDITY.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1883	.....	.....	.....	.....	.....	89.9	91.1	93.5	87.9	84.0	85.2	82.6
1884	83.3	84.3	87.4	90.1	88.5	35.1	92.2	91.8	82.4	86.3	90.8	90.2
1885	89.9	93.2	89.3	89.0	89.4	90.3	92.7	92.8	91.5	84.7	90.2	87.0
1886	95.1	92.1	90.0	90.3	.....	.....	.....	.....	.....	.....	.....	.....
Means	89.4	89.9	88.9	89.8	89.0	88.4	92.0	92.5	87.3	85.0	88.7	86.6

Annual means: 87.7 for 1884; 90 for 1885.

RAINFALL AND MELTED SNOW—AMOUNT OF PRECIPITATION IN INCHES.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	2.07	1.45	1.07	1.32	3.29	2.23	2.21
1883	0.61	2.98	0.61	1.03	0.38	2.38	1.77	2.25	2.50	2.90	2.20	1.96
1884	0.94	1.49	1.44	1.38	1.31	0.26	2.27	1.71	1.70	3.26	3.39	0.96
1885	0.58	0.39	0.25	0.86	1.19	1.63	4.05	2.15	3.32	1.34	4.08	1.61
1886	0.66	1.50	1.33	1.25	.....	.....	.....	.....	.....	.....	.....	.....

Total: 21.57 inches in 1883; 20.11 inches in 1884; 21.45 inches in 1885.

Monthly means of meteorologic observations, etc.—Continued.

NUMBER OF DAYS ON WHICH 0.1 INCH OR MORE RAIN OR SNOW FELL.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	13	18	16	5	13	7	8
1883	20	19	14	18	10	20	20	19	16	16	18	19
1884	12	14	15	12	11	5	13	15	14	20	13	16
1885	18	8	10	7	12	12	12	14	14	12	18	8
1886	13	12	11	9	.....	.....	.....	.....	.....	.....	.....	.....

Total: 209 days in 1883; 160 days in 1884; 145 days in 1885.

PREVAILING WINDS.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	S.	S.	S.	S. & SW.	N.	NW.	S.
1883	NE.	S.	E.	E.	N.	S.	S.	S.	S.	SW. & NW.	SW.	E.
1884	NE.	NE.	N.	N.	S.	S.	S.	E.	SW.	N.	NE.	E.
1885	E.	NE.	NE.	N.	N.	S.	S.	S.	S.	NW.	N.	NE.
1886	NE.	E.	N.	SW.	.....	.....	.....	.....	.....	.....	.....	.....

MAXIMUM HOURLY VELOCITY (IN MILES).

[Taken from current velocities.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1882	.....	.....	.....	.....	.....	.....	29	.....	37	42	45	54
1883	54	41	39	36	34	36	20	47	30	42	44	42
1884	40	48	40	43	26	18	22	40	30	46	37	34
1885	35	43	35	35	38	32	27	.....	25	48	37	48
1886	37	26	41	42	.....	.....	.....	.....	.....	.....	.....	.....

A considerable amount of snow falls during the winter. The fierce winter gales usually blow it off the plateaus, forming immense drifts in the valleys and on the lee side of the mountains. In deep, shadowy gullies it often remains all summer, and in cold seasons—as, for instance, 1895—large drifts still remain unmelted as late as September, even at the level of the sea.

Drift ice seems to be of rare occurrence in recent times. I do not know how much reliance can be placed in old Pitr Burdukovski's story to me that formerly, say about 1850, "drift ice was yearly observed coming from the north in large masses." Certain it is that Steller expressly states that during the winter no ice collected in the sea. (Ber. Ins., p. 270.)

To complete the meteorologic account, I may mention that thunderstorms are of rare occurrence on the Commander Islands. In 1879, on November 19, Mr. Krebs, after a residence of eight years in the main village on Copper Island, experienced the first thunderstorm. In 1881 on February 8, he records "a stroke of lightning and a short but strong thunderclap about 7 p. m." Mr. Chernick, in Nikolski, Bering Island, reports "thunder and lightning" on September 12, 1878. I myself observed a thunderstorm passing over Nikolski September 18, 1882. The first lightning was observed at $9^h\ 58^m$ p. m., local time; wind SW., 13 miles an hour; barometer, 29.552 inches; temperature of air, 52.2° F.; clouds, cumulo-stratus, 8, direction SW.; intervals between first lightning and thunder, 96 seconds; sixth thunderclap ($10^h\ 25^m$ p. m.), 12 seconds after lightning; tenth, 40 seconds; eleventh, lightning before

thunder of tenth. This was the last distinct thunder heard, $10^h 35^m$ p. m. After that continued distant lightning lit up a narrow strip along the northern horizon. No lightning seen after $11^h 10^m$ p. m.

Aurora borealis is equally scarce. At Nikolski, on November 15, 1882, I observed a faint northern light at $12^h 30^m$ a. m., local time, extending to about η *Urs. majoris*. On November 17, 1882, I observed another at $10^h 40^m$ p. m., local time, consisting of a uniform greenish-white light below, above which most of the time a large rosy space was seen filling the arch between γ and η *Urs. majoris;* a similarly colored but often broken arch extended through the constellations of *Cygnus*, *Cassiopeia*, *Gemini*, and *Auriga*, sometimes fainter, sometimes more fiery, especially in *Cygnus*. Very seldom the red color filled the space between the rosy spot below *Ursa major* and the upper arch, and then only for a few seconds. At 11 p. m. the sky became so overcast as to cut off further observation.

Corresponding observations made at St. Paul Island, Pribilof group, from 1872 to 1883, and published by the United States Weather Bureau (Fur Seal Arb., II, App., pp. 591–593), afford means of exact comparison between the Russian and the American seal islands, except as regards mean temperature, the latter being obtained on St. Paul from observations made at 7 a. m., 2 p. m., and 9 p. m.

But even a comparison of the mean temperature affords several very interesting results. Thus, while the annual means apparently differ but slightly, there is also the same relative proportion between the various months from December to September. But while the figures representing the mean temperatures for these months are higher on Bering Island than on St. Paul, those of October and November are higher on the latter. The chief exception from the relative proportion between the months is shown by the mean temperatures of August, which is about 4° higher than July and September in Bering Island, but only about 2° in St. Paul.

Turning now to the maximum temperature, it will be seen to be 63° F. in Bering Island as against 62° on St. Paul. But on the other hand, while the minimum temperature in Bering Island was hardly ever below zero during the four years of observation, it often drops below that point in St. Paul. Thus, the difference between the summer and winter extremes is less on Bering Island than on St. Paul.

Coming now to the question of cloudiness, it will be seen that, while the annual percentage is almost identical, the monthly distribution is radically different. Thus, while in St. Paul Island there are five times as many clear days during November to April as during May to October, on Bering Island the proportion is reversed, there being four times as many clear days during the latter period as during the former. Of fair days, St. Paul enjoys nearly twice as many during the above six winter months as during the six summer months, while Bering Island has a good many more fair days in summer than in winter. Consequently the entirely overcast days preponderate on St. Paul in summer, while on Bering Island their number is greater in winter. The latter island, moreover, has about 10 per cent more overcast days during the whole year, but, on the contrary, also about 10 per cent less overcast during the summer months, or during the time the seals remain on the islands.

Unfortunately, the percentage of relative humidity is not given for St. Paul Island. A glance at the table for Bering Island will show how excessively humid the climate of the latter is, the annual means reaching 90 per cent, the monthly means occasionally exceeding 95 per

cent, and never lower than 82 per cent. The months showing the greatest percentage of relative humidity are July and August.

The Weather Bureau tables alluded to do not contain any data relating to precipitation on St. Paul Island, and all the published information I have been able to find relates only to the months May to November.[1] Compared with the corresponding tables for Bering Island, they show that the precipitation on the latter island is considerably smaller during that period than on St. Paul Island.

FAUNA AND FLORA OF THE COMMANDER ISLANDS.

The animals and plants of the Commander Islands have been studied since Steller set foot on the virgin ground of Bering Island in 1741. He collected and described all the new things he saw, and if he had lived to elaborate his collections and finish his work but little would have been left for his successors. Since then Vosnessenski has been on the island; Dr. Dybowski collected during various visits between 1879 and 1883; Nordenskjöld's *Vega* expedition, with his admirable staff of scientists, Nordquist, Kjellman, Stuxberg, and Almquist, used their five days' stay in 1879 exceedingly well; and, above all, Mr. Grebnitski has devoted work, time, and money during nearly twenty years to enrich the Russian museums, particularly that of the Imperial Academy of Sciences in St. Petersburg, with extensive and costly collections of natural history. The United States National Museum is also indebted to him for valuable material. Finally, during my stay in 1882–83, and to a less extent in 1895, I myself have been able to add my mite to our knowledge of the flora and fauna of these islands, nearly all my collections being now in the United States National Museum. Yet the subject is not exhausted; many animals and plants occurring there remain uncollected, while many of the collections in the museums await the arrival of the specialist to work them up.

Lack of time and space prevents more than the briefest possible résumé of the subject in the present connection. A more exhaustive treatise would make a book in itself. There is abundant evidence in the material at hand to show that the islands during the period previous to which they received their present fauna and flora were totally covered by the sea, and that since that time they have not been connected with the mainland on either side. From this it follows that the animals and plants are not truly indigenous, though I have no doubt that many of the numerous species described as new from these islands are really peculiar and not found elsewhere; but in that case their origin on the islands is undoubtedly due to comparatively recent isolation. The sporadic character of the fauna and flora, as shown in the great number of genera in proportion to the species, as well as the absence of many forms which, from their general distribution, would be expected to occur, is clearly indicative of the accidental immigration of the component species. They evidently immigrated, especially and more regularly from the west, from Asia, by means of prevailing winds—currents and driftwood carried by these—and more seldom from the east, from America. That such inhabitants as are more independent of the above agencies likewise show nearer relationship to the Asiatic fauna is partly due to the shorter distance and partly to the well-known effort of the Asiatic fauna to extend beyond its own limits.

As might be expected from their location, the islands are chiefly palearctic in their bio-geographical relations, with a fair sprinkling of

[1] Fur Seal Arb., VIII, pp. 518–519.

circumpolar, American, and North Pacific forms. The marine fauna and flora partake more particularly of this latter character, and it is probable that Dr. W. H. Dall's conclusions, derived from a study of the mollusks, applies to most of the other marine animals, viz:

> The fauna of Commander Islands, as far as known, is intimately related to the general Arctic fauna and especially to the Aleutian fauna, somewhat less so to the Kamchatka fauna, but presents in itself nothing distinctive. While the faunal aspect of the mollusca is boreal there is a number greater than might be expected of species common to Japan and California.

To this statement he afterwards added the note:

> The connection with Japan is rather that the northern forms extend southward into Japan than that any characteristic Japanese forms extend north. (Proc. U. S. Nat. Mus., IX, 1886, p. 219.)

MAMMALS.

The chief zoological interest centers in the four marine mammals revealed to the scientific world in Steller's famous treatise "De Bestiis Marinis" (Novi Comm. Ac. Sc. Imp. Petrop., II, 1751, pp. 289–398, pls. XIV–XVI), which must always remain a monument to the learning and industry of its author. In this he described for the first time the sea cow, the sea lion, the fur seal, and the sea otter.

Of these, the sea cow (*Hydrodamalis gigas*, also known as *Rytina gigas* or *stelleri*) possesses greatest interest, on account of its early extermination by man, which took place in 1768, twenty-seven years after its discovery. The sea cow was an herbivorous animal, anteriorly shaped somewhat like a seal, but with a large caudal fin like that of a whale or fish, but no hind legs, and belonging to the mammalian order of *Sirenia*, the few living relations of which, the manati and dugong, now only inhabit the tropical waters of both hemispheres. There is no indisputable evidence of its having ever inhabitated other coasts than those of the Commander Islands, as the find of a rib on Attu Island does not necessarily prove that the animal once lived there, though that is not improbable. The history of this animal, imperfectly known as it is, fills volumes, and all we can do in the present connection is to refer to some of the more recent literature (Büchner, Die Abbildungen der nordischen Seekuh, Mém. Ac. Imp. Sc. St. Petersb., 7 ser., XXXVIII, 1891, No. 7.—Stejneger, Proc. U. S. Nat. Mus., 1883, pp. 78–86; 1884, pp. 181–189.—Stejneger, On the Extermination of the Great Northern Sea Cow, Am. Geogr. Soc. Bull., No. 4, 1886, pp. 317–328.—Stejneger, How the Great Northern Sea Cow (*Rytina*) Became Exterminated, Amer. Natural, XXI, Dec., 1887, pp. 1047–1054).

The sea lion (*Eumetopias stelleri*) was formerly quite abundant, but has now become nearly extinct on both islands, though still numerous in certain localities on the Kamchatkan Coast. In 1895 I saw only one individual on Sivutchi Kamen at the North Rookery, Behring Island.

The fur seal (*Callotaria ursina*) being the chief subject of this report, needs no further mention in this connection.

The fate of the sea otter (*Latax lutris*) in the Commander Islands is highly instructive and interesting. When Bering and his unfortunate followers landed on Bering Island they found the sea otters so numerous that these animals furnished food for the entire crew during the whole winter. On their return to Kamchatka the following year (1742) they brought with them more than 700 skins of this costly fur. Then followed a period of reckless slaughter of these animals by the rapacious promyshleniks. Thus, in 1745, Dassof and Trapeznikof secured 1,600 skins; in 1748 about 1,350 were killed. The result was that within a very few years the sea otter almost disappeared from Bering Island,

for Tolstykh's expedition obtained only 47 during the winter of 1749–50; Drushinin's men, in 1754–55, took only 5; while in the account of Tolstykh's second exhibition, winter 1756–57, it is expressly said that "no sea otters showed themselves that year." It is interesting to note that even in those days Copper Island offered a safer retreat for the sea otter, since Yugof, who also visited that island, returned home in 1754 with 790 skins.

While not actually and literally exterminated on Bering Island—Trapeznikof's expedition of 1762–63 secured 20 otters there—it did not become common there again, except, possibly, during an alleged sudden reappearance in 1772, until after the abandonment of the island, when the Russian-American Company was organized. Upon the recolonization of the island the otters were found common in places; thus it is said that in 1827 no less than 200 otters were killed in one week at the reef near the present Nikolski village (Slunin, Promysl. Kamch. Sakh. Komand. Ostr., 1895, p. 103). But the reckless slaughter of former days was resumed and the sea otter long ago ceased to be a regular inhabitant of that island. Occasionally a solitary individual strays over from Copper Island, where the same careful management which resulted in the increase of the fur seal has succeeded in preserving and increasing the sea otter to such an extent that I believe there is no other place in the world where so many sea otters can be seen at the present day. The condition of the herd is now such that 200 animals can be killed off yearly without detriment. The places where the sea otter have their rookeries are constantly guarded, to keep intruders off. Shooting, making fire, or smoking is strictly prohibited near these places. Only nets are now used to capture the otters, and if any females or yearlings are caught alive they must be set free. The number to be taken is determined in advance by the administration, and the hunting expeditions of the natives are undertaken in common, under the leadership of the chief, though each hunter keeps the otter he secures. They are taken off their hands by the Russian Government at a certain fixed price.

Of other marine mammals occurring at the Commander Islands, we may further mention four species of hair seals, viz, *Phoca largha*, *fœtida*, *grœnlandica*, and *fasciata*; three species of ziphioid whales, viz, *Ziphius grebnitzkii*, *Berardius bairdii*, and *Mesoplodon stejnegeri*; a sperm whale (*Physeter macrocephalus*); several delphinoid whales, among which the terrible enemy of the fur seal, the killer (*Orca gladiator*), as well as several species of fin-back whales.

The land mammals are few, the most important being the Arctic fox (*Vulpes lagopus*). These animals, which are now fairly common, yielding a handsome income to the natives, belong almost exclusively to the dark-bluish phase. Their economic importance will be treated of elsewhere in this report.

There are two rodents on Bering Island, but both have been introduced by the agency of man during late years. *Mus musculus*, the common house mouse, was brought to Bering Island in 1870 by the schooner *Justus*, in a cargo of flour. The short-tailed red field mouse (*Microtus rutilus*), which now overruns the islands in vast numbers, was introduced from Kamchatka at a much later date, probably with the firewood. This is probably the origin of the bats (*Vespertilio?*) which are said to have been seen at Nikolski during the last couple of years.

The introduction of the reindeer (*Rangifer tarandus*) will be mentioned elsewhere (p. 33).

BIRDS.

I have reported upon the birds in a separate volume (Results of Ornithological Explorations in the Commander Islands and in Kamchatka. By Leonhard Stejneger. Bull. No. 29, U. S. Nat. Mus. 1885; 382 pp. + 8 plates) and in a later supplementary paper (Revised and Annotated Catalogue of the Birds Inhabiting the Commander Islands; Proc. U. S. Nat. Mus. 1887, pp. 117–145 + 3 plates), to which I would refer the reader for detailed information. In the last-mentioned paper I enumerated 143 species of birds as having been collected in the Commander Islands. To these I can now add three species, viz: (1) *Gavia alba*, the ivory gull, a specimen of which Mr. Grebnitski presented to me (U. S. Nat. Mus., No. 151983); (2) *Eurynorhynchus pygmæus*, the spoonbill sandpiper, two specimens of which were shot during the latter part of September, 1894, and sent by Mr. Grebnitski to the museum in St. Petersburg, and (3) *Milvus melanotis*, the black-eared kite, a mere straggler, taken once on Bering Island. The specimen was presented to the *Vega* expedition by Mr. Grebnitski (Palmén, Vega Exp. Vetensk. Iaktt., v, 1887, p. 294).

One of the Commander Island birds (*Phalacrocorax perspicillatus*) deserves at least a passing notice, not only because we know of no other locality in which it has with certainty occurred, but because it has become extinct within recent years through the agency of man. The history of this rare bird (only four specimens exist in museums) is traced and full description given by me in a separate paper (Contribution to the History of Pallas's Cormorant; Proc. U. S. Nat. Mus., XII, 1890, pp. 83–88). In 1882 I fortunately disinterred a number of bones of this bird, which have been described and figured by Mr. F. A. Lucas (tom. cit., pp. 88–94, pls. II–IV). An additional collection made by me in 1895 will also shortly be elaborately described and figured by him. A preliminary note may be found in Science, November 15, 1895, page 661.

FISHES.

A collection of littoral and river fishes occurring at the Commander Islands, brought together by Mr. Grebnitski and myself, is now being reported upon by Dr. Tarleton H. Bean. The report will be published in the Proceedings of the United States National Museum, as No. 11 of the "Contributions to the Natural History of the Commander Islands."

TUNICATES.

Styela arctica has been described by Swederus (Vega Exp. Vet. Iakt., IV, 1887, p. 108) as a new species from Bering Island.

INSECTS.

Mosquitoes are numerous on Bering Island and very annoying on the few otherwise pleasant days of which the summers of that region can boast. *Geometridæ* and *Microlepidoptera* are rather numerous, *Noctuidæ* less so. I have only seen one specimen of diurnal Lepidoptera, viz, a butterfly very much like *Vanessa urticæ*. Of the Coleoptera, the large staphylinid, *Creophilus villosus*, is very numerous on the seal-killing grounds. Mr. John Sahlberg has reported upon a few (9) Coleoptera and (1) Hemiptera collected by the *Vega* expedition (Vega Exp. Vet. Iakt., IV, 1885, pp. 61–68), one of which is described as new, viz, *Anisotoma abbreviata*, one of the *Siphidæ*. My own collections are considerably larger and contain (besides the Microlepidoptera), according to a

preliminary census by Mr. M. Linell, 46 species, of which 33 are Coleoptera. These include all of Sahlberg's species except *Oxypoda opaca* and *Anisotoma abbreviata*, so that the Coleoptera from the Commander Islands now number 35 species. Of these, no less than 12 species belong to the *Staphylinidæ*. The other orders are represented by 2 species of *Hemiptera*, 5 *Diptera*, 3 *Hymenoptera*, 1 *Siphonaptera*, and 1 Lepidopter, viz, *Agrotiphila alaskæ* Grote.

It should be remarked that the insects collected of late years in the neighborhood of the main villages must not be given too great weight in determining the zoological relationship of the islands, for many have undoubtedly been introduced recently from Petropaulski, Kamchatka, in the large quantity of firewood shipped to the islands every year. In fact, some species collected by me in 1895 were taken on or near the wood pile.

MYRIAPODS.

The three species brought home by me have been determined by Bollman. *Linotænia chionophila* and *Lithobius sulcipes*, both from Bering Island, are known from other localities, but the species described by him as new, under the name of *Lithobius stejnegeri*, is the only one thus far found only on the Commander Islands (Bull. U. S. Nat. Mus. No. 46, 1893, p. 199).

ACARIDS.

The acarids collected by the *Vega* expedition have been described by Kramer and Neuman (Vega Exp. Vet. Iakt., III, 1883, pp. 519–532, pls. XLI–XLIV). No less than 5 new species were described from Bering Island, 4 of which were found only on the latter, as follows: *Nesæa arctica*, *Bdella villosa*, *Ixodes borealis*, *I. fimbriatus*, and *Gamasus arcticus*. Of these I obtained only *I. borealis*.

SPIDERS.

It was my intention to get as nearly complete a collection of spiders as possible, and I succeeded in obtaining quite a number of species, which were turned over to the United States National Museum. They were lent to the late Dr. Marx to be determined, but the report was not finished before his death.

CRUSTACEANS.

The crustaceans collected have not been worked up as yet, except the entomostraca, which have been described by Prof. W. Lilljeborg, of Upsala, Sweden (On the Entomostraca collected by Mr. Leonhard Stejneger, on Bering Island, 1882–83. Proc. U. S. Nat. Mus., X, 1887, pp. 154–156). Five species were collected, of which I found *Branchipus paludosus*, *Daphnia longispina*, and the new species *Diaptomus ambiguus*, in small fresh-water ponds at Ladiginsk, Bering Island. The other new species is *Eurycercus glacialis*, which, however, has also been found in Greenland and Vaigatch Island, at the entrance to the Kara Sea.

The crabs have been identified by Mr. J. E. Benedict, as follows: *Oregonia gracilis* Dana; *Telmessus cheiragonus* (Tilesius); *Eupagurus gilli* Benedict; *Eupagurus hirsutiusculus* (Dana); *Eupagurus middendorfii* Brandt; *Eupagurus nudosus* Benedict, and *Hapalogaster grebnitskii* Schalfeef, recently described from Bering Island (Bull. Acad. Sc. St. Petersb., XXXV, No. 2, 1892, p. 335, fig. 3). Schalfeef identifies another species of *Hapalogaster*, also collected by Mr. Grebnitski on Bering Island, as *H. mandtii*.

MOLLUSKS.

Among the invertebrates, the mollusks have been most extensively collected and most thoroughly reported upon. The *Vega* expedition obtained 26 species, Mr. Grebnitski sent the National Museum 23 species, and I myself 45 species, out of a total of 75 species thus far collected. Of these, 10 are land or fresh-water species. Dr. W. H. Dall has published two reports upon the Commander Islands collections (Proc. U. S. Nat. Mus., VII, 1884, pp. 340–349; and IX, 1886, pp. 209–219). In the last paper he gives a full list of the species, including those of the *Vega* expedition which have been reported upon by Westerlund and Aurivillius. The species of land and fresh-water mollusks thus far collected on the islands are: *Limax* (*Agriolimax*) *hyperboreus; Vitrina exilis; Hyalina radiatula; Conulus fulvus*, var.; *Patula ruderata*, var. *pauper; Pupilla decora* and *arctica; Acanthinula harpa; Limnæa ovata; L. humilis; Pisidium equilaterale.* The new species described from Bering Island by Aurivillius is *Pleurotoma beringi;* and by Dall, in his first paper, *Lacunella reflexa* (p. 344, pl. II, figs. 1–3), *Cerithiopsis stejnegeri* (p. 345, pl. II, fig. 4), and *Strombella callorhina* var. *stejnegeri* (p. 346, pl. II, figs. 5, 6).

WORMS.

At least one species of earthworm occurs, and several leeches, but, like the rest of the lower invertebrates collected, they have not been reported upon as yet. Wirén has described a new species of chætopod from Bering Island, viz, *Potamilla neglecta* (Vega Exp. Vet. Iakt., II, 1883, p. 422).

SPONGES.

A new variety (*arctica*) of *Esperia lingua* has been described from Bering Island (5–10 fathoms) by Fristedt (Vega Exp. Vet. Iakt., IV, p. 449, pl. XXV, figs. 20–24; pl. XXIX, fig. 18).

PLANTS.

It was quite to be expected that Steller, as an expert botanist, should have made extensive botanical collections on Bering Island, and as he seems to have collected 211 species of plants there (see Pennant, Arct. Zool., Suppl., 1787, p. 38), he gathered more species than any of the various collectors who visited the island afterwards. Thus the combined collections of Dybowski, Wiemuth, and Kjellman include 144 phanerogams, while I have brought home nearly exactly the same number of species. The combined number of species, however, is much greater. Dr. Kjellman has published an interesting account of the flora as revealed in the first-mentioned collections (Vega Exp. Vet. Iakt., IV, 1887, pp. 281–309), while the late Prof. Asa Gray, in 1885, reported upon my collections in the Proceedings of the United States National Museum, VII, pp. 527–529, to which paper I added a few remarks (ibid., pp. 529–538). During my trip in 1895 I had but scant time and facilities for collecting plants, and I confined myself chiefly to an unsuccessful search for *Cassiope oxycoccoides* in the exact locality and about the same season as I had collected it in 1882. Nevertheless, I was able to add a few species to the flora, which Dr. J. N. Rose, of the National Herbarium, has kindly determined for me as *Carex rariflora*, *Kœnigia islandica*, and *Ranunculus hyperboreus.* From the lists published it should now be possible to compile a tolerably complete flora of Commander Islands phanerogams.

Dr. Asa Gray described one of my ericaceous plants as new, viz, *Cassiope oxycoccoides*, and the late Dr. George Vasey afterwards determined one of the grasses to be new and named it *Alopecurus stejnegeri* (Proc. U. S. Nat. Mus., x, 1887, p. 153; figured as fig. 2, pl. XXIV, Grasses Pacif. Slope, by Vasey, pt. I, 1892). As these species have not as yet been recorded from other localities, they must be regarded, provisionally at least, as peculiar to the Commander Islands, and Dr. Kjellman's statement to the contrary effect (tom. cit., p. 286) must be modified accordingly.

Dr. Kjellman's concluding remarks (tom. cit., p. 289) are so interesting and important that I venture to translate them here, as follows:

The flora of the Commander Islands is chiefly composed of two elements. One of these consists of species not entering the present Arctic region, or at any rate not to be regarded as belonging to the characteristic plants of this region. Most of these have their chief range of the present day extending over the islands and coasts of the Northern Pacific Ocean. These form the bulk of the vegetation and determine its character. I regard them as arcto-tertiary species, of which many, at least, have formerly had a wider distribution than at present.

The other element consists of species which by their present distribution are indicated as arctic-alpine. Several of these are to be regarded as among the characteristic plants of the present Arctic regions.

The Commander Islands, with the other Aleutian Islands, compose a floral district which forms a transition chiefly between three other districts, viz, the Manchu-Japanese, the Americo-Pacific, and the Arctic district, although less closely related to the latter than to the other two, the northern outpost of which it may be regarded to represent.

Dr. Ernst Almquist has investigated the lichens of Bering Island and has published a very interesting account of his studies (Vega Exp. Vet. Iakt., IV, 1887, pp. 518–519, 521, 524–531), in which he gives an ingenious explanation of the curiously sculptured surface of the heath-like plant covering of the lower plateaus as due to a natural rotation of the plants composing it.

The general character of the flora is very much like that of the treeless regions of northern Europe, the most discrepant features being the splendid rhododendrons (*R. kamtschaticum* and *chrysanthum*) and the beautiful dark-maroon-colored Saranna-lily (*Fritillaria camtschatcensis*), the bulbs of which the natives gather for food in late summer. These plants indicate the close relationships to the flora of Kamchatka and the other Aleutian Islands. The plants of both islands are in most cases identical, but the manner of their immigration very likely has caused the occurrence of some species in one island which are absent in the other. Thus I have from Copper Island the conspicuous yellow flowering *Viola biflora* (also found by me at Petropaulski), which I failed entirely to find on Bering Island, and which I could scarcely have overlooked.

The islands are completely destitute of trees, the few species of *Salix*, *Pyrus*, and *Betula* hardly ever rising above 6 to 8 feet, though I have a section of *Betula eversmanni* from Bering Island with a diameter of 2 inches at the root. The *Pyrus* in many places forms extensive, nearly impenetrable, thickets.

There are two tolerably well-defined belts of vegetation on the island, one a very luxuriant growth of higher plants in the lower valleys and plains, the other a heath-like formation above the former.

The luxuriance of the vegetation in the lower belt, due to a rich soil and extreme moisture, is marvelous. Some species familiar to me from boyhood I could hardly recognize in the enormous specimens before me. Such plants as *Anemone narcissiflora* and *Geranium erianthum* sometimes reach a height of 3 feet, while in some particularly favored localities many acres of ground may be found covered with an almost

impenetrable jungle of *Archangelica*, *Heracleum lanatum*, *Artemisia tilesii*, *Picris japonica*, *Spiræa kamtschatica*, *Aconitum*, *Veratrum album*, etc., often reaching a height of 5 to 6 feet. The exuberance of the umbellifers, particularly near the coast, is very striking, as shown in the accompanying photograph of *Heracleum lanatum* (pl. 15*a*). Near the beach this belt shows the usual influence of the neighborhood of salt water in the presence of such plants as *Lathyrus maritimus*, *Mertensia maritima*, and *Ligusticum scoticum*.

The heath commences often quite abruptly above this belt, covering the surface of the beach terraces and the lower plateaus. Its presence does not depend so much upon the altitude as the character of the ground, for where the coast escarpment is low the heath formation commences even at an altitude of 20 to 30 feet. The fundamental plant of this formation is *Empetrum nigrum*, richly interspersed with *Loiseleuria procumbens*, *Cassiope lycopodoides*, and other ericaceous plants, chiefly *Bryanthus*, and in the lower portions *Rhododendron chrysanthum*. Where the ground is marshy the salmon berry, *Rubus chamæmorus*, is rather common. Higher up on the mountain sides the vegetation grows more and more scanty and alpine in character.

The pelagic flora around Bering Island has been studied by Dr. F. R. Kjellman (Kgl. Svenska Vetensk. Akad. Handling. (n. s.), XXIII, 1889, No. 8, 58 pp., 7 pls.), who observes that at Bering Island all conditions are found favorable to the development of a rich flora of algæ of the pelagic type. "It may even be said with safety that there are but few parts of the ocean the flora of which exceeds or even approaches that around Bering Island, in so far as multitude of individuals or number of magnificent forms are concerned."

NATIVE POPULATION OF THE COMMANDER ISLANDS.

The Commander Islands, when discovered in 1741, were uninhabited, and no trace of any former population has been found. For over eighty years the islands remained without a regular population, although they were visited almost yearly up to the end of the eighteenth century by numerous parties of Russian fur hunters, or promyshleniks, as they are called. In the early days it was the custom of these hardy frontiersmen to pass the first winter on Bering Island in order to secure provisions of sea-cow meat for their further expeditions. Sometimes the crews of several vessels wintered there at the same time, in one year at least (1754–55) numbering over 100 men. Those were gay days on Bering Island, when the sea cow, the sea otter, the blue fox, and the fur seal were still plentiful. But these precious animals were soon exterminated literally, as the sea cow, or commercially as the three other species, and the inhospitable and dangerous shores of the Commander Islands were but seldom visited by sailors or hunters.

When the colonial district of Atkha was established by the Russian-American Company in 1826, it was decided to locate a number of natives from the other Aleutian Islands, and consequently two colonies of Aleuts and half-breeds, the offspring of Russian promyshleniks and Aleut women, were planted on Bering and Copper islands. A similar colony, located on the Kuril Islands, was made up mostly from natives of the Kadiak district. The colony of Bering Island consisted chiefly of natives of Atkha Island, or the Andreanovski group, in general, while the Copper Islanders were made up mostly of men and women from Attu. Although the inhabitants of the two islands by transfer and intermarriage have become considerably mixed of late, yet the difference in origin is still traceable in the dialects spoken, the Atkha

people still preponderating on Bering Island, the Attu islanders on Copper Island.

Of late years two other elements have been added to the native population. As noted above, the Russian-American Company had located a colony of natives, mostly from the Kadiak district, on the Kuril Islands. When the latter islands were ceded to Japan these natives and their offspring declared their intention of remaining Russian subjects and were transferred to Kamchatka. After a miserable existence for several years in a small village outside of Petropaulski, they were located on the east coast near Cape Lopatka, in order to hunt sea otters. Their village was situated in a small bay just back of Cape Zholti.[1] They did not do well there, and during the last few years (1888) were transferred to Bering Island, their number helping to swell the total of the Commander Islands population. This was not a very desirable addition, however, and has not resulted in elevating the morals of the former inhabitants.

The other addition consists in a number of girls from Petropaulski. It was found that the inbreeding of the natives on the two islands was not only having a deleterious effect upon the health and vitality of the community, but intermarriage had made the inhabitants so interrelated that it was difficult to find people who could be married at all without violating the intricate laws of the Russian Church governing marriage between relatives. Under these circumstances a number of unmarried young men from both islands were encouraged to go to Petropaulski and provide themselves with brides.

The following tables of the population on the islands are derived from various official returns, published and unpublished. The figures for 1860 are from Tikhmenief's book. The figures for 1895 have been mislaid, but the total for both islands is believed to be about 650 (?). The tables are meant to show only the native population, and not to include those temporarily living there, as the administrator, his assistant, the doctor, the midwife, the priests, the deacon, the cossacks and soldiers, the company's agents, or their families. They would increase the total about 20, and the entire population of the Commander Islands in 1895 may therefore be set down as about 670 of both sexes.

Native population of Commander Islands, 1860 to 1892.

Year.	Bering Island.			Copper Island.			Total, both islands.
	Male.	Female.	Total.	Male.	Female.	Total.	
1860			300			90	390
1870	126	111	237	80	73	153	390
1875	139	132	271	90	81	171	442
1880	164	145	309	91	101	192	501
1881			310			203	513
1883	164	155	319	93	114	207	526
1892			336			300	636

Apart from the sudden increase, due to the importation of the Zholti Mys natives, a pretty steady, though slow, increase of the population is noticeable since 1870. This is rather interesting in a mixed population of but indifferent vitality, and, moreover, afflicted by a tendency to scrofulous and pulmonary diseases, the more so since a couple of rather severe epidemics of influenza and scarlet fever have swept over

[1] I have partly traced the history of these natives in an article in Science (n. s. II, July 19, 1895, pp. 62, 63). When that was written I little thought that on the very day of its publication I should be living among these same natives on Bering Island.

the islands of late years.[1] The question of the movement of this population during the years 1868 to 1881 has been studied by Dr. B. Dybowski,[2] whose tables relating to births and deaths are interesting enough to deserve a place in this connection.

Number of births and deaths on Commander Islands, 1868 to 1881.

Year.	Bering Island.						Copper Island.						Total, both islands.	
	Births.			Deaths.			Births.			Deaths.				
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	Births.	Deaths.
1868	2	4	6	6	9	15	0	0	0	3	1	4	6	19
1869	4	2	6	4	13	17	2	3	5	0	0	0	11	17
1870	9	4	13	3	7	10	3	5	8	0	2	2	21	12
1871	5	3	8	3	1	4	2	2	4	0	0	0	12	4
1872	7	9	16	6	4	10	3	2	5	1	0	1	21	11
1873	7	7	14	3	0	3	2	2	4	1	3	4	18	7
1874	8	10	18	3	3	6	6	6	12	0	5	5	30	11
1875	5	6	11	4	6	10	2	6	8	3	2	5	19	15
1876	8	6	14	2	2	4	5	6	11	4	2	6	25	10
1877	10	5	15	3	8	11	4	6	10	6	1	7	25	18
1878	6	9	15	2	5	7	5	7	12	4	0	4	27	11
1879	11	12	23	2	5	7	3	6	9	6	4	10	32	17
1880	6	8	14	7	7	14	7	4	11	3	2	5	25	19
1881	7	7	14	9	3	12	6	5	11	5	5	10	25	22
Total	95	92	187	57	73	130	50	60	110	36	27	63	297	193

Births and deaths on Commander Islands, according to months, from 1868 to 1881.

Months.	Births.								
	Bering Island.			Copper Island.			Both islands.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
January	3	12	15	3	5	8	6	17	23
February	5	4	9	2	6	8	7	10	17
March	6	3	9	6	4	10	12	7	19
April	3	4	7	2	8	10	5	12	17
May	7	5	12	8	3	11	15	8	23
June	7	9	16	4	4	8	11	13	24
July	4	7	11	3	4	7	7	11	18
August	6	8	14	2	0	2	8	8	16
September	10	9	19	5	3	8	15	12	27
October	17	8	25	5	7	12	22	15	37
November	7	9	16	1	5	6	8	14	22
December	8	3	11	3	6	9	11	9	20
Month unknown	5	4	9	0	0	0	5	4	9
Total	88	85	173	44	55	99	132	140	272

Months.	Deaths.								
	Bering Island.			Copper Island.			Both islands.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
January	4	3	7	2	0	2	6	3	7
February	2	3	5	1	2	3	3	5	9
March	2	3	5	0	2	2	2	5	8
April	3	1	4	2	3	5	5	4	9
May	6	4	10	0	1	1	6	5	11
June	1	17	18	1	5	6	2	22	24
July	2	4	6	3	0	3	5	4	9
August	5	9	14	8	2	10	13	11	24
September	7	5	12	6	2	8	13	7	20
October	4	2	6	3	3	6	7	5	12
November	6	4	10	3	0	3	9	4	13
December	4	5	9	2	0	2	6	5	11
Month unknown	2	10	12	0	2	2	2	12	14
Total	48	70	118	31	22	53	79	92	171

[1] As a result, the native population of Bering Island, according to Dr. Slunin (Prom. Bog. Kamch., etc., p. 57), between 1886 and 1891 suffered a decrease of 16, there being 111 births only, against 127 deaths. His statement, however, that the population of Copper Island has not increased during the twenty years from 1872 to 1892 is not in conformity with the facts as shown in the above table.

[2] Wyspy Komandorskie, pp. 78–87.

importance of the hunt is also shown, and the relative scarcity of the white phase.

Number of foxes killed on Bering and Copper islands, 1871–1883.

Bering Island.			Copper Island.	
Season.	Blue foxes.	White foxes.	Season.	Foxes.
1871–72	836	4	1872	[illegible]
1872–73	580	28	1873	[illegible]
1873–74	514	24	1874	[illegible]
1874–75			1875	
1875–76	1,087	50	1876	[illegible]
1876–77	573	19	1877	
1877–78			1878	
1878–79	789		1879	[illegible]
1879–80			1880	[illegible]
1880–81			1881	
1881–82	1,447	20	1882	[illegible]
1882–83	872	13		
Total	6,698	158	Total	[illegible]

The blue foxes must now be taken in traps exclusively. Shooting them is entirely forbidden, and as the foxes mostly live near the coast it is also forbidden to travel with dog sledges and to fire any shot near the coast after September 1 (old style). It was found that by digging them out of their holes females were mostly obtained, and this method has consequently been prohibited. The dried skins are sold to the company at a fixed price. As the natives are now paid 14 rubles for each first-class fox skin and 7 rubles for each second-class skin, it will be seen that the foxes are a valuable source of income to them.

Owing to the ease with which the natives could procure seal meat for food, they have paid but little attention to other means of subsistence, particularly as the ready money obtained from the company for skins and work secured sufficient variation from the company's stores, whence they also obtain their flour, hard bread, tea, sugar, etc., not to forget canned provisions. As a result, the sea fishery does not yield what it otherwise might. On Copper Island, however, the natives catch some cod and halibut. They have a tolerably good boat harbor and many boats. On Bering Island, however, the lack of a sheltered harbor and landing-place is a great drawback. On the other hand, the rivers and creeks of Bering Island are filled with salmon during the summer months, thus yielding the natives an abundant supply of fish for themselves and their dogs. The Saranna River is particularly important in this respect. The salmon are here caught in a substantial weir built across the river at the village of Saranna. During each summer nearly all the women are kept busy cleaning and drying from 60,000 to 100,000 salmon (pls. 60, 61). The weir is kept open from Saturday night to Monday morning to allow fish to ascend the river and lake to spawn. The bulk of the salmon put up belongs to the two species "Krasnaya riba," or redfish (*Oncorhynchus nerka*), and kisutch, or silver salmon (*O. kisutch*).

There is very little game now to hunt on the islands. The natives are very fond of the meat of the various sea birds, especially early in spring, and being provided with modern breech-loading guns and an unlimited supply of amunition,[1] the result is that birds have become

[1] Mr. Kluge says the natives on Copper Island annually use 800 to 900 pounds of gunpowder.

comparatively scarce—very much so, in fact—near the villages. Ptarmigans (*Lagopus ridgwayi*) are, I believe, still numerous on Bering Island.

During their lease Hutchinson, Kohl, Philippeus & Co. introduced a herd of Kamchatka cattle on Bering Island and kept it at an expense entirely disproportionate to the benefits derived. The company has given up keeping cows, but the cattle have passed into the hands of the natives, while the white families on the island also have a few head to keep them supplied with milk. It has been supposed that cattle raising might have a future on Bering Island, but past experience disproves the prediction, at least with the present breed of cattle. It has even been suggested "that these sturdy cattle might be advantageously introduced into the Aleutian Archipelago," but aside from the fact that it requires a good deal of care and fodder to bring them successfully through the winter, even on Bering Island, the breed is highly objectionable from the fact that the cows refuse milk the moment their calves are taken away from them.

On the other hand, I firmly believe that with a suitable breed sheep raising could be made a success, not only on the Commander Islands, but on the American Aleutian Islands as well. The climate is not more severe nor more moist than on some of the Scotch islands, or the Faroes, where sheep raising and fishing are the main industries. But, of course, if an experiment is to be made, it must not be undertaken with sheep from California or some other country with a climate differing widely from that of the islands. It is imperatively necessary that a race like the Scotch black-face be employed; otherwise, the experiment would be sure to be a failure; but with proper precautions, and under the guidance of experienced men, I feel convinced that sheep raising would be the proper solution of the food question in the Aleutian Islands.

On Bering Island the sledge dogs would be an insurmountable obstacle to the introduction of sheep. As a matter of fact, however, the dogs are now of but little use, and should be exterminated—the sooner the better. The increasing number of boats have made the dogs superfluous along the coasts and for inland transportation, particularly from the main village, Nikolski, to the North Rookery. The introduction of a few Kamchatkan ponies would do the work much more satisfactorily, as proven by the success of the mules on the Pribilof Islands. In the fall of 1882 a couple of horses were brought over from Petropaulski, let loose, and allowed to take care of themselves during the entire winter, which was a rather severe one. The winter gales swept the level places nearly bare of snow and the horses found more than plentiful food in the dry grass thus exposed. So far from suffering hunger, the horses in spring were found to be sleek and well fed; in fact, in better condition than when they arrived on the island. They were afterwards sold to a native, but died later—a circumstance undoubtedly due to the ignorance or lack of care of the owner.

The sledge dogs are still one of the most interesting features of Bering Island. There must be at least 600 dogs in Nikolski, but while formerly they were allowed to run loose, and afterwards kept chained outside of the owner's house, Mr. Grebnitski has of late years banished all the dog pens to the sand hills back of the village, much to the improvement of good order and comfort in the village. Each dog has a hole in the ground large enough for him to lie down in while chained to a stout pole near by. Here they pass their days howling or sleeping, when not out traveling. For traveling, a number of them, mostly 11 or 13, are hitched in pairs to a low sledge. A trained leader is tied on in front. This is an intelligent and valuable animal, and is guided

entirely by the driver's voice. In winter, on the snow, such a team will haul a load weighing 400 pounds, and I have traveled 40 miles in a day, though without any baggage worth mentioning. But they are also used in summer on the bare ground. Of course, the rocky places are avoided as much as possible, and the summer tracks are preferably located over the marshes and in the low places. On frequented routes, as between Nikolski and North Rookery, or Saranna, the constant travel has worn deep ruts in the ground—in some places 2 to 3 feet deep. These ruts being veritable ditches, drain the surroundings, and are, therefore, usually in a very slippery condition, to which the droppings of the dogs add materially, making it fast if not pleasant traveling. Some of these routes are shown by dotted lines on the map of Bering Island (pl. 4).

Most of the dogs differ greatly from the Kamchatkan dogs, belonging, in fact, to an entirely different race. They have large, hanging ears, and were originally brought to the island from Okhotsk. Of late years teams of Kamchatkan dogs, which have erect, pointed ears, and are very much like the ordinary Eskimo dogs, have been imported, as the original hang-eared dogs were degenerating from inbreeding, and now mongrels of all possible shades and with ears of all possible shapes are common enough. The hang-ear dogs are furthermore distinguished by having the regular dog bark, while the Kamchatkan dog can only howl.

The recent introduction of reindeer into Bering Island seems to have been a success. Hutchinson, Kohl, Philippeus & Co., in 1882, by the efforts of Dr. B. Dybowski, secured 4 male and 11 female reindeer in Kamchatka, which were safely landed on Bering Island July 15. During the following winter 2 females were killed by natives, but the herd increased by the birth of 6 or 7 calves. The reindeer took up pastures in the southern, mountainous part of the island, and are said to have multiplied rapidly. I did not see them in 1895, but I heard estimates of their number varying between 600 and 1,000 deer. A careful selection of bucks for killing would add to the fresh-meat supply and at the same time promote the rapid increase of the herd.

It is not improbable that the reindeer might do well on Copper Island, in spite of the smaller size of the island; but I am inclined to the belief that the introduction of a suitable, hardy race of goats would be a better investment.

A few hens and tame ducks are kept in the villages on both islands.

A glance at the meteorological tables, pages 13–17, will show that any agriculture, in the proper sense of the word, is out of the question. On Bering Island there is a half-hearted, half-successful attempt at raising a few vegetables. Formerly most of the native families had "gardens" at Staraya Gavan, where turnips and potatoes were raised with varying success. The place was entirely too far from the main village, however, and new gardens have been started at Fedoskia, on the west coast, a few miles south of Nikolski. In 1895 there was only one man who still had a vegetable patch at Staraya Gavan. I believe that this industry could be made more successful if the natives were taught proper methods. One common error now committed is that all the vegetables are planted entirely too close together. It would also be necessary to look out for hardy plant seeds and seed potatoes raised in a northern climate.

The fuel used by the natives consists of coal and birch wood, the latter brought from Kamchatka and sold by the company, and of driftwood collected by the natives along the beaches. The latter article is

very uncertain and is now often very scarce, though formerly abundant enough. Coal, on account of the long transportation, is expensive and, like the birch wood, requires cash to purchase it. A couple of shiploads of the latter are required every year, and while the supply in Kamchatka is almost limitless at the present time, yet it is not so accessible now at places where there are people to cut it and where it can be loaded into a vessel. With the decreasing number of seals affecting the revenues both of the natives and of the company, the day does not seem distant when the former will be unable to buy, while the latter may find it unprofitable to have a steamer constantly plying between the islands and Kamchatka. Knowing, moreover, that the fuel question was a grave one on the other Aleutian Islands, and that peat bogs may be expected to be found on many of the latter, as they occur on Bering Island, I undertook, in 1883, to investigate them and to bring samples of peat home for analysis. East of Nikolski, behind the sheltering hills and sand dunes, a large swamp extends back to the foot of the three Saranna Baidar Mountains, covering several square miles. In suitable localities large beds of peat of excellent quality are found. On June 15, 1883, I had a couple of men cut about 350 pieces of peat from near the surface. The pieces, averaging about 2 by 16 by 8 inches, were spread out on a hillside to drain, and ten days later they were stacked in pyramids in such a manner that the intervals between the pieces gave the air uninterrupted circulation between them.

When leaving the island in the autumn I found the pieces of good consistency and took a fair quantity with me to have the properties of the peat tested. They were turned over to Dr. Fred. P. Dewey, then curator of metallurgy at the United States National Museum, who kindly furnished me with a report of his analysis of the peat, which he found of good quality. It should be observed that the peat was from the surface, and therefore not nearly so good as it would have been if it had been taken deeper down. Dr. Dewey's report has never been printed, and, in view of the great importance of this question, both for Bering Island and the other Aleutian Islands, I think it well to submit it in full:

REPORT ON PEAT FROM BERING ISLAND.

As received, the sample consisted of about 30 slabs of the peat, most of them of considerable size, so that it can be considered as a fairly average sample; since, however, it had been collected several years, it was unusually dry. It was first tested by building a fire under a small boiler. It ignited with great ease and gave off its volatile matter at a low temperature, forming a good, solid flame without much smoke and giving off a good amount of heat. It required only a small amount of kindling wood to thoroughly start the fire, and after it was once started and had been thoroughly observed it was left to itself, and at the end of five hours it still had vitality enough to ignite fresh material, showing that it had good staying power. If there had been sufficient material on hand to build a large fire, it would probably have held its fire for fifteen to twenty hours, but only a small fire could be built, and the result is very satisfactory. A small piece was cut off from each large piece and the small pieces properly ground and sampled for a chemical analysis, which yielded the following results:

Water	7.60
Volatile matter	51.97
Fixed carbon	22.06
Ash	18.37
	100.00

As might be expected from the time since the sample was collected, the analysis shows an unusually small amount of water, and while the ash is rather high, the whole analysis shows the peat to be above the average in its contents of actual combustible material, and that, therefore, it would undoubtedly form a very valuable fuel in the country where it is found.

As prepared for use by simply air-drying, peat frequently contains from 15 to 25 per cent of water, and unless artificial heat is used in drying it is not probable that this one could be dried to less than 20 to 25 per cent of water; and on this basis its composition would be—

Water	20.00	25.00
Volatile matter	45.00	42.19
Fixed carbon	19.10	17.90
Ash	15.90	14.91
	100.00	100.00

These results compare favorably with the following analysis of a peat from Devonshire, England, which has been used extensively for fuel:

Water	25.56
Volatile matter	35.41
Fixed carbon	29.30
Ash	9.73
	100.00

Should it be necessary to use artificial heat, it could, of course, readily be obtained by the combustion of a portion of the peat itself in a suitably designed furnace.

I am satisfied that this peat will make an excellent fuel, and that the proper steps should be taken to introduce its use among the natives of the region.

Most of the natives on both islands live in neat frame houses, built and presented to them by Hutchinson, Kohl, Philippeus & Co., instead of the damp and filthy sod huts (here called yurt) which they formerly lived in. If properly located and built, however, the sod house is well suited to the climate and the needs of the people, and the munificence of the above company ceasing with the expiration of the lease, the Zholti Mys natives, as well as many a new-wed young couple, have erected new sod huts. These are built over a wooden frame, lined inside with boards, and the site properly drained (pls. 15*b* and 16*a*).

Nowadays the males dress almost exclusively in imported ready-made clothes, and the women make themselves dresses of calico or woolen goods, though for heavy overcoats and capes they wear also imported ready-made articles. Even the latest fashions penetrate rapidly to these distant shores. My surprise may well be imagined at seeing girls there last year wearing gay-colored waists with enormous "leg-o'-mutton" sleeves! Ready-made shoes are also used in great quantities, for although a few men have been taught shoemaking, comparatively little repairing is done. The old homemade garments are going out of use. The old rain coat, made of dried seal guts, is being laid aside for the oil coat, and the native tarbassi—moccasins made of seal skin or the inside throat lining of the old bull seals—are giving way to rubber boots. Even the baidarka, the graceful skin canoe, is a thing of the past, as the sea lion has become nearly exterminated on the islands, and the same fate has befallen the large skin baidaras, great lighters made of a framework of wood over which was stretched sea lion skins sewed together. The framework is taken apart and used for other purposes, and the steamers' boats do the work of the baidara.

The municipal institutions of the two Commander Island communities are particularly interesting, not only because they are peculiar, but because they differ so radically on the two islands. The system on Bering Island is one of nearly pure communism, while on Copper Island it may be termed individualistic by comparison. The local administration has, of course, a great power and influence, but the natives have also a great deal to say in regard to their own affairs. They elect for a certain term a chief and an assistant chief, subject to the approval of the administrator or local governor. The chief, in a measure, repre-

sents the community, and through him all communications to the natives have to go. This is particularly the case with reference to the company and its agents, who have absolutely no authority whatsoever over the natives, much less over the chief. The men attend to their internal affairs, receive the Government's communications, and hold their elections in their assembly house. The chief's business, among other things, is to see that the governor's orders are executed, that work to be undertaken is properly done, and that the moneys coming to the natives are properly distributed, etc. If I wanted a team of dogs and sledge, I could not arrange with any native I pleased, but had to notify the chief who would then send me the one whose turn, as duty or privilege, it would be to furnish the dogs.

A specified tariff for all work is provided. On Bering Island the total proceeds from the seal killing, 1.50 rubles per skin, is paid into the community fund and then distributed according to shares, each family, according to the individual rating of the members, receiving a certain number of shares and fraction of shares. For this the able-bodied men have to do the community work, including the sealing, without further compensation. On Copper Island an entirely different system prevails. There each family is paid for each skin which a member of the family brings to the salthouse. Hence men, women, and children are engaged in the work, each family trying to bring in as many skins as possible. This system has been found necessary there, as the population would have been entirely inadequate to handle the catch if the Bering Island scheme had been adopted. It has resulted in overworking the Copper Islanders, especially the females; but I am not certain that their more cheerful and independently open character, as contrasted with the more sulky and indifferent aspect of the Bering Island natives, is not due to the competition, on one hand, and the paralyzing communism on the other.

The religion of the natives is, of course, the orthodox Russian Greek Catholic faith. They have built a fine and expensive church on each island. They also support a priest on each island, and on Bering Island an assistant priest or "diakon." The moral plane of the church—its methods, men, and members—is similar to that of the same institution in Alaska.

Schools are provided for both islands and housed in roomy and well-lighted buildings, very creditable in every respect. The children are provided with all the modern improvements in school furniture, as well as apparatus for object lessons, maps, and colored charts of animals and plants decorating the walls, on which, over the teacher's rostrum, also hang the portraits of the Tsar and the Tsarina. Whether the knowledge received by the boys and girls is up to the fine apparatus I am not able to say. Anyway, the boys used to write a good hand, at least when the late Mr. Volokitin taught them. I also saw the apparatus of a modern school gymnasium, but as it was outside the schoolhouse and being painted dead-black, I surmise that the authorities had come to the conclusion that it was carrying coal to Newcastle to give the outdoor children of Aleut extraction the additional physical exercise of indoor gymnastics.

A doctor, appointed and paid by the Government, is now stationed on Bering Island, with a good drug store on each island. He has for an assistant a "feltcher" or barber, a native boy who has undergone a training at Vladivostok. The midwife, sent out from St. Petersburg by the authorities there, must also be regarded as the doctor's assistant.

A.—Bering Island.

GENERAL DESCRIPTION.

Bering Island, the northwestern island of the Commander group, is situated between (approximately) 55° 22′ and 54° 42′ north latitude and 165° 40′ and 166° 41′ east longitude (pl. 4). Its greatest length from northwest to southeast is a little less than 50 miles, the average width being about 10 miles.

Two outlying islets, both not far from the northwestern extremity, properly belong here—Toporkof Island, a flat-topped, low island, about 2 miles west of the main village, and Ari Kamen, on older charts usually called Sivutchi Kamen, a higher basaltic rock, with a two-peaked top, 4½ miles farther west.

The southern two-thirds of Bering Island are exceedingly mountainous, with peaks rising to about 2,200 feet. The maximum elevation is nearer the western side than the eastern, and the rise from the sea consequently more abrupt along the former coast, the mountains sloping more gently toward the east. The valleys, as a rule, are shorter, narrower, and V-shaped on the west side, longer and more open on the other. The passes are usually high, 600 to 1,000 feet, but at one place, viz, between Gladkovskaya on the west coast and Polavino on the east, the two valleys are continuous, with a very low watershed, thus dividing the mountains into two separate masses. In these the peaks, ridges, and intervening valleys are distributed without any apparent regular system. In the northern mountain mass, however, it is easy to recognize a dominating central stock between Podutiosnaya and Buyan, from which several of the largest streams of the island radiate west, north, and east, as, for instance, Podutiosnaya, Fedoskia, Kamennaya, the Staraya Gavan River, and the Buyan River. The most conspicuous mountain of the southern mass, and in fact the highest on the island, is the one which I have named Mount Steller.[1] It is located just south of the low valley between Gladkovskaya and Polavino, mentioned above, and is particularly impressive and beautiful viewed from the latter place. The mountains grow more forbidding and precipitous as the southern extremity of the island is approached, the last cape, a bold and knife-sharp promontory, the Stotchnoi Mys, better known as Cape Manati, being particularly picturesque.

The northern third of the island has an entirely different aspect from the remainder. In a general way it may be described as being low, the highest elevation being but slightly more than 600 feet. In reality it consists of a series of usually well-marked terraces. First comes the present beach followed by a steep coast escarpment averaging about 30 feet. In the deep bays this escarpment recedes inland so as to inclose the lakes formed by the rise of the land, and the heaping up by the sea of gravel and sand in front of them. Then follows a strip of varying width of nearly level or gently sloping land to the base of an intermediate, often abrupt terrace, which brings us to an elevation of from 200 to 300 feet. The level following leads to the next and last rise, which is the highest, but also usually the most gentle, though in some places still quite precipitous. The level above this rise forms either large plateaus with a somewhat undulating surface, or the tops of singularly regular, flat-topped table mountains, which the natives, from

[1] Deutsche Geograph, Blætter, VIII, 1885, p. 240.

their appearance suggesting overturned boats, have given the graphic name of Lotka, or Baidara, Mountains. There are two groups of these table mountains, both very conspicuous when one approaches at sea the main village, viz, the Severnie Lotki, two very regular and round tables, between 3 and 4 miles (nautical) north of the Nikolski, and the Saranskie Lotki, three equally well marked, though less regular mountains, about 5 miles distant to the northeast, on the west side of the great Saranna Lake. The highest altitude of the former group I have measured to be 577 feet; of the latter, 617 feet. The two main plateaus, which are situated north of the great lakes, are the Northern Plateau, between Cape Zapadnie and Saranna, and Tonkoi Plateau, from the latter place, where a deep cut, in which flows the Saranna River, separates the two plateaus, to East Tonkoi Mys, the Cape Waxell of many charts.

Between the terraced plateaus, which form the foothills and northern extension of the mountainous southern portion of the island, and the two detached table-lands named above there is a depression extending across the island, which is filled by one very large and a number of smaller lakes, as well as by extensive swamps.

The large lake alluded to, Saranna Lake,[1] is quite an imposing sheet of water for so small an island, covering, as it does, an area of about 20 square miles. It connects with the sea at the Saranna village, on the north shore of the island, by means of a short river, less than a mile long. The level of the lake is about 40 feet above that of the sea. From the western end of this lake there is almost continuous communication through a small swamp with two smaller lakes, which empty into the sea at the western side, through the Ladiginskaya River. A somewhat larger lake, the Gavanskoye Ozero, occupies the center of a large swamp immediately east of the main village. The stream by which it discharges its water passes the latter, and is Steller's Osernaya Reshka. The low land between the lake and sea is protected near the latter by several rows of high sand dunes from the village to Ladiginsk.

It is a curious fact that Steller (Neuste Nord. Beytr., II, 1793, pp. 266–267) describes this lake as the largest on the island, and that he has entirely overlooked the existence of Saranna Lake. It is pretty good evidence that Steller did not visit that part of the island personally (unless possibly when it was covered with ice and snow), and explains also his omission of mentioning the great north seal rookery. There are a few small lakes, or rather ponds, in the southern mountainous portion, which need no special mention, except the one in Lissonkovaya Bay, as the natural conditions there are a miniature reproduction of the Gavanskoye Ozero. It may be added that Lissonkovaya is Steller's Yushin's Valley.

Bering Island has no sheltered harbors, and the few anchorages are indifferent or even dangerous under anything but the most favorable circumstances. The principal anchorage is in the corner off Nikolski, but with southerly or westerly winds it is not safe. It can be approached from the west by keeping close to the south shore of Toporkof Island, in order to avoid an outlying rock off the so-called Vkhodni Point, or Reef. The channel north of Ari Kamen and Toporkof is very dangerous and should be avoided. Farther south, on the same side, are two larger bays, Gladkovskaya and Lissonkovaya, but they are open and no landing can be effected in rough weather. On the east side is Staraya Gavan, the "Old Harbor," where there was

[1] On some maps called Fedoskia Lake, a name unknown on the island.

formerly a settlement. The bay is small and narrow, with dangerous reefs on both sides.

These reefs are quite a feature of the Bering Island shores. In the northern portion they are mostly of volcanic nature, but in the mountainous portion they consist of stratified rock on edge in such a manner that many of them, especially at Tolstoi Mys and northward, when bare at low tide have the appearance of plowed fields with furrows of great length and regularity. On the stretch of coast just mentioned these reefs form a nearly continuous belt, one-fourth to one-half mile wide, and parallel to the beach. A narrow channel of somewhat deeper water, though only deep enough so that a large boat can be barely pulled and pushed through by low water, extends the whole length between the beach and the reef belt, which is covered by high tide. The continuity of the reef is only broken where some larger stream empties into a slight indenture of the coast, as, for instance, at Komandor, at Polavino, and at Buyan.

The main settlement is at Nikolski,[1] so named in honor of Mr. Nikolai Grebnitski, situated at the inner corner of the little bay east of Toporkof Island (pl. 17). The houses are built in several rows on the raised beach at the mouth of the Gavanskaya Reshka and partly upon the sandy slope of the adjacent hills, and being mostly frame structures are painted in many gay if not always tasteful colors. Prominent also in this respect the new church, dedicated to St. Nicolas, raises its yellow dome over a grass-green roof, while the body is painted pink with white and sky-blue trimmings! The old church of St. Inakenti is still standing, dismantled and neglected.

At the western end of the village is located the new Government building with offices for the administrator and the doctor, and next to it the new schoolhouse, both rather large, but uninteresting, lead-colored structures (pl. 17*b*). In the center of the village is located the company's dwelling house for the agent (pl. 18*a*), painted a friendly white and surrounded by the magazines, stores, stable, bath house, etc. Beyond is the admistrator's dwelling, unpretentious, but comfortable (pl. 18*b*). The sod huts are relegated to the rear, and, hardly differing from the surrounding grass, are very inconspicuous (pl. 15*b*).

At Saranna (pl. 61) there is quite a village of small houses and huts for the women in summer, when they live there in order to put up the large salmon catch. A small frame chapel was being built last year on the brow of the hill back of the village.

The summer village at Severnoye, or the North Rookery, will be described under the head of the latter. There was formerly also a temporary village at Staraya Gavan, to accommodate the people during the planting and harvesting season, but a new one has been built in its stead at Fedoskia, not far from Nikolski.

SEAL ROOKERIES.

It was on Bering Island that Steller, in the spring of 1741, discovered for the first time the rookeries and breeding grounds of the fur seals, which he had previously observed traveling northeastward toward unknown regions. His classical descriptions, so well known to all naturalists, need not detain us here, except in so far as they relate to the extent and location of the rookeries. Unfortunately, his works contain very little bearing upon this question. In his "Beschreibung der

[1] On some maps called Grebnitski Harbor, or Grebnitskoye Seleni.

Berings Insel" (Neuste Nord. Beyträge, II, 1793, p. 289) there are a few observations, however, which throw some light on the subject. On the 29th and 30th of April (new style) the shipwrecked crew had killed the first bulls just arrived. Steller at once concluded that they had found the breeding habitat of these animals and hoped for more to follow. He says:

> In this hope we were not deceived, for numberless herds soon followed, filling the entire coast to such an extent that one could not pass by without danger to life and limbs; nay, in some places where they covered the whole shore we were often obliged to travel over the hills and rocky places. * * * These animals landed only on the southern side of the island,[1] opposite Kamchatka, consequently at least 18 wersts from the nearest place to our dwellings. * * * [This was a long way to carry the big bulls, the flesh of which, moreover, was very unpalatable.] But we soon discovered that another smaller kind of fur seal, grayish of color, which arrived with them in still greater numbers, had a much tenderer and more palatable meat, without odor, which consequently could be eaten without nausea. We discovered also a nearer road to these directly south from our dwellings, scarcely more than half as long as the former.

From these quotations it is perfectly plain that at the time of the discovery of Bering Island there were no breeding grounds or rookeries on the east side of the island; that there were well-filled breeding grounds on the west side; that these were situated on the shore where now are located the few hundred females forming the Poludionnoye, or South Rookery, and that vast numbers of bachelors hauled up in Lissonkovaya Bay, where there are none now, nor have there been any apparently within the memory of the natives residing on the island.

The destruction of this hauling ground must be credited to the same parties who accomplished the extermination of the sea cow in twenty-seven years.[2]

At the present day there are only two distinct rookeries on Bering Island, the principal one being located on the northern coast of the island, the other, a small affair, on the west coast.

THE NORTH ROOKERY. (Plate 7.)

The great North Rookery (Severnoye lezhbishtche) is situated on the northernmost prolongation of the island (Severni Mys; also called Cape Yushin) about 11 miles from the main village, Nikolski, and about 10 miles from the northwest cape, Zapadnie Mys. The north plateau of the island recedes here from the sea, leaving a broad, level tundra, which slopes gently northward toward the sea, ending abruptly in a steep escarpment about 30 feet high, between which and the water a flat beach about 400 feet wide extends all around the point.

From this beach a long, rocky reef of volcanic origin extends for half a mile nearly due north, ending in a somewhat isolated high rock, the so-called Sea Lion Rock (Sivutchi Kamen). The terminal half of this reef is very low and, with the exception of the scattered larger rocks, under water at high tide; in fact, it requires very low water to be able to walk out to the Sea Lion Rock. The basal half is formed by a slightly raised, long, and narrow peninsula about a quarter of a mile long by 400 feet wide, the central portion of which constitutes a hard, gravelly beach about 10 feet above mean tide, and gently sloping toward the

[1] Steller applies the term "south side" to the entire shore, which from our better knowledge of the topography of the island we would call the western shore. It is evident from various statements in his works that he did not visit the true northern shore between Cape Waksell and Zapadnie Mys.

[2] L. Stejneger, How the Great Northern Sea Cow (*Rytina*) Became Exterminated. American Naturalist, XXI, December, 1887, pp. 1047–1054.

water on both sides, and fringed, except at the base, by the rocky reef. The northern two-thirds of this gravelly central portion is covered with fragments of shells of mollusks and echinoderms, so that it appears quite white, for which reason this part of the rookery is often spoken of as "the sands;" the basal third is covered with a very rank growth of *Elymus mollis*, continuous with the fields of the same grass which line the inner portion of the beach up to the escarpment. The vegetation is now gradually extending in a wedge-shaped point northward over the central part of "the sands." Several isolated rocks surround the rookery on both sides, as well as numerous sunken reefs.

From the base of the projecting point thus described, which is specifically designated as the Reef Rookery (Rifovoye lezhbishtche), the coast trends east and is fringed with the same rocky reef as the rookery itself; but the seals do not haul up on these rocks, and they form no part of the rookery. The bay thus inclosed is comparatively shallow and sheltered, forming the principal playing ground of the pups. Here they learn to swim. Near the south shore the rocks mark off a series of shallow lagoons.

From the western side of the "Reef Rookery," the base of which is here marked off by a detached rock, called Babin, or Babinski Kamen, the coast trends south-southeast. The beach shows the same characteristics, viz, an inner grass-covered belt, followed by a narrow, pebbly belt more or less whitened by broken shells and fringed by an outer rocky reef, which by low water embraces innumerable very shallow lagoons.

The grassy belt is widest (fully 400 feet) toward the reef, and the escarpment is here nearly obliterated by a little creek coming from the south. Its mouth is usually dammed up by the pebbles and gravel thrown up by the sea, and the grassy belt in this locality is therefore intersected by numerous connected pools of nearly stagnant water.

Farther south the escarpment again assumes its precipitous aspect and approaches nearer to the beach.

About five-eighths of a mile from the base of the "reef" the rocky beach projects again a little and, as the coast line beyond takes a more southerly turn, a corner is formed which the natives designate as Blizhni Mys. Just before this "cape" there is an expansion of the gravelly part of the beach which, like "the sands" of the reef, serve the seal hauling up in this neighborhood as a "parade" ground. This portion of the beach is now called Kishotchnaya. The patch of breeding seals located here are known as Kishotchnoye lezhbistche or (rarely) Blizhnoye lezhbistche.

Beyond Blizhni Mys the reef fringe, as well as the grassy belt, again expands, the escarpment retreating from the coast, only to reapproach farther south at another promonotory which is well marked by two high, grass-covered, mound-like masses of rock, the so-called Great Maroshishnik, or Maroshnik, and Little Maroshnik. Beyond this point the coast forms another slight bay, fringed with reefs, like the foregoing, but not so wide. This is Kisikof, and as this is the last point where seals are known to have hauled up regularly, it may be regarded as the southern end of the great North Rookery.

The killing grounds are located on the gentle slope (about 3 in 100) above the escarpment, about 600 feet southeast of the base of the reef. The ground is here smooth and covered with a short, fine grass. The upper end is pitted all over with holes dug 4 to 6 feet deep and about 6 feet wide, used by the natives as "silos," into which they place the seal meat, intestines, etc., destined for winter food for the sledge dogs.

In addition, boxes and barrels are likewise scattered over that part of the ground, and in these the natives salt the seal meat for their own use (pl. 19*a*).

The driveways on this rookery are short and easy. From the reef the drive is scarcely three-eighths of a mile long, for the least part over the rocky beach, and for the greater portion through the shallow lagoon at the base of the reef and across the fields of rank grass. The ascent up the escarpment is scarcely 30 feet high, with an incline of about 35°. The road there is worn perfectly bare of vegetation and in wet weather is somewhat slippery, but not enough so as to cause a serious impediment to the drive.

The driveway from the southern end of the rookery is considerably longer, from Kishotchnaya, for instance, nearly three-fourths of a mile; but as it is partly over the same beach upon which the seals themselves haul up and travel about with ease, and partly over the inner grassy belt of the beach, no special hardship is involved. The killing grounds are reached from the west side, where the escarpment is locally interrupted, and the gentle slope beyond extends down to the water.

The company's salt house is located 500 feet north of the killing grounds, at the extreme north end of the escarpment, and its reddish-brown walls and roof are visable all around for a considerable distance, being, in fact, the best landmark on this part of the island. It is a frame building, originally 45 by 26 feet, with a later eastern addition 20 by 24 feet. On the north side a plank "chute" and stairs lead down the escarpment to the beach below (pl. 24).

Southeast of the killing grounds, about 1,200 feet from the beach, and between 60 and 70 feet above the sea, the mud-hut village of the natives, where the men live during the killing season, is located, and directly in front, north of the new huts, the only wooden dwellings of the place, one belonging to the Russian Government, in which the kossak and his family reside, the other (16 by 20 feet) built by the company for its employees. Formerly the company's "sealer" lived in a small frame hut just east of the salt house, but this is now used for storing salt in sacks, while the kossak occupied a mud hut, or yurt, a little farther east (pl. 25*b*).

There has of late years been several distinct yurt or mud-house villages at this rookery. The first one was situated just back of the coast escarpment, west of the salt house, and between it and the present driveway, scarcely more than an eighth of a mile from the rookery. This was inhabited until 1877. In 1878 Mr. Grebnitski ordered the village to be moved back and the new yurts were built an eighth of a mile southeast of and farther up on the hill than the former. The yurts, or barabras, were low and small and dark, musty and dirty, and have recently become entirely unfit for use. A series of new ones have now been erected and others are still being built immediately east of the former site, and these are in every way supplied with "modern improvements," inasmuch as they are comparatively large, dry, and provided with windows. They are built entirely above ground, and constructed of uprights rammed into the ground, and covered on the inside with boards nailed on lengthwise. The walls and roof are then covered with a thick layer of sod (pl. 16*a*). On the whole, they are rather comfortable and warm, being certainly more suited to the climate and the wants of the people than the ordinary frame houses.

The appended map of this rookery (pl. 7) is the result of a traverse plane table survey made July 9 to 19, 1895, in the intervals between the rain and fog. A base line, exactly one-fourth of a statute mile

long, was carefully measured off on the level ground to the west of the salt house. About 100 angles, from 14 stations, were measured. Another map of the same rookery was made by me in 1882–83, but on a considerably smaller scale, by means of an azimuth compass and pediometer. The new and more detailed survey confirmed the accuracy of the old map. There has never been published any map of this rookery.

THE SOUTH ROOKERY.

The South Rookery of Bering Island (Poludionnoye lezhbishtche) is now a very insignificant affair. As mentioned above, it is the only remnant of the countless numbers of seals which Steller saw on this side of the island. Situated at 55° 57′ north latitude, on the west coast of the island, halfway between Northwest Cape and Cape Manati and nearly 16 miles in a straight line from the village Nikolski, it occupies a narrow, curved beach under the steep bluffs of the coast escarpment, which here rises perpendicularly from 60 to 100 feet high. A beautiful waterfall in the next bight to the east forms a very conspicuous landmark (pl. 32*b*), and three-fourths of a mile to the westward is one of the most perfect natural arches, which I have named Steller's Arch (pl. 27*b*).

The rookery beach is hemmed in both at the west end and the east by projecting spurs of the escarpment, and at the corresponding corners long rocky reefs run out into the sea, inclosing and protecting a shallow bay which, in spite of the openness of the coast, forms a safe harbor for the pups. The beach itself, hardly 100 feet wide, consists of an outer pebbly and rocky portion with a rather steep incline toward the water and an inner narrow and level belt covered with very tall vegetation, mostly *Elymus* and *Heracleum*.

The breeding seals occupy part of the pebbly beach, also hauling up on the outlying rocks of the reef.

The driving is made along the beach toward the east, and although not long, the entire distance being about 2,000 feet, is somewhat harder than on the North Rookery, as the seals have to be driven mostly over sand and round loose stones. The ascent to the killing grounds is steep and high, about 50 feet, leading from the boat landing up past the house, where the few natives live, and the small salt house beyond (pl. 32*a*).

The accompanying map of the South Rookery (pl. 9), as the title indicates, is but little more than a sketch map. The time I had at my disposal was very limited, and did not suffice for a very accurate survey, or to measure off a reliable base line. The photographs I secured, however, testify amply to the general correctness of the map, and it is confidently asserted that the relative distances and angles are sufficiently accurate for all practical purposes. It is the first map published of this rookery.

B.—COPPER ISLAND.

GENERAL DESCRIPTION.

Copper Island (Ostrof Miedni), so called from the native copper, of which small quantities have been found from time to time near its northwestern extremity, lies between 54° 53′ 30″ and 54° 33′ 30″ north latitude and 167° 28′ 30″ and 168° 9′ east longitude (approximately). It is very mountainous, long and narrow, the length being nearly 30 miles, the average width about 2 miles. The general trend is north-

west to southeast, like that of Bering Island, from which it is distant only about 29 miles.

The northwestern extremity is formed by a projecting cape, continued in two characteristic and bold, detached rocks, the Sea Otter Rocks, Bobrovi Kameni. From this point to the southeast end, which is marked by several smaller conical rocks, the island consists of a backbone of peaked mountains from 1,000 to 2,000 feet high and connected by ridges varying from 500 to 900 feet high. Only in two places is this backbone broken, viz, near the northern end, where the Bobrovi Valley, between Pestshanaya Bay on the east side and Bobrovaya Bay on the west shore, cuts deep down to about 350 feet above the sea, so that Copper Island seen from a distance—for instance, from the opposite shore of Bering Island—looks like two distinct islands. The other place is near the south end. A very narrow and low neck only 900 feet wide and 75 feet high, very properly named Peresheyek, or isthmus, separates the mountains of the south end from the rest of the island.

The highest mountain on the island is Preobrazhenskaya Sopka, which rises precipitously above the main village. I have measured it with an aneroid twice, the height being 1,925 feet.[1]

Narrow, deep valleys cut into the sides of the island vertically to its axis. A kettle-shaped end with steep walls usually terminates these valleys, whence originate small creeks or rivulets which occupy the narrow bottom. The sides of the valleys are often quite smooth, the detritus consisting of small, sharp-edged pebbles, often forming long, unbroken slopes, with angles from 30 to 40 degrees. The ridges between the valleys, if high, are usually very sharp and narrow.

The shores are mostly high and precipitous. Narrow beaches, covered with large bowlders of rocks fallen down from the cliffs behind, extend with many interruptions around the island, but the latter are so numerous as to make traveling along the beach for any distance impracticable. Cliffs and pinnacles, formed into most fantastic shapes by the action of the waves, rise out of the sea all around the island, sometimes singly, sometimes in clusters. Occasionally large detached or half-detached rocks form more conspicuous landmarks, as, for instance, the Bobrovi Kameni mentioned above, the Sivutchi Kamen at the northern entrance to Bobrovaya Bay, and the one of the same name on the other side only a short distance east from the main village, the Cape Matveya, Gladkovski Kamen, both on the east side, and, most striking of all, perhaps, Karabelni Stolp at the rookery.

Outlying concealed rocks are few, except at the northwestern and southeastern capes, where dangerous reefs extend some distance into the sea. Otherwise the water around the island is bold, the farthest rock, to my knowledge, being off Lebiazhi Mys, is less than a mile from shore.

The rivers or brooks are necessarily all short and insignificant, hardly any one of them deserving special notice. A few of them, near their mouths, empty into small lakes, which have undoubtedly been formed by the sea throwing up material, thus damming off the inner end of the bay. Such lakes are Pestshanoye, just west of the main village; the lake at the end of Zhirovaya Bukhta, to the east of it; and Gladkovskoye Ozero, in the next valley beyond. The latter is not properly a lake, as the water is strongly brackish, the sea going in at high tide. There are many waterfalls, but on account of the insignificance of the

[1] July 23, 1883, 1,921 feet; July 30, 1895, 1,929 feet.

streams they are of little effect. A few, however, are quite picturesque; for instance, the one at Karabelni Rookery, figured on plate 45.

The entire western coast is very steep, with but few shallow indentations. On the eastern side the valleys are wider and deeper, and open into more or less deeply cut bays, none of which, however, offer shelter anchorage for vessels much larger than a boat, and as the waves of the Pacific Ocean roll unchecked against the rocks and beaches, landing is often difficult or impossible even at the villages. Only the little rounded cove forming the harbor at the main village is an exception, it being well protected in almost all weather by a cluster of rocks off the entrance. But even this place is not always safe, as demonstrated by the fact that a tide gauge, solidly built of timber in the most sheltered part of the cove and loaded with rocks, was thrown high on the beach by the surf during the winter of 1882-83.

The main village, called Preobrazhenskoye, or the "Village of the Transfiguration," because of its church being thus consecrated (pl. 33), is situated on the eastern, or here more appropriately northern, side near the northwestern extremity of the island. Its neat, red-painted frame houses and the handsome Greek church nestle cosily at the foot of a steep, high mountain, and it looks as if it might be a sheltered and pleasant place, but as a matter of fact it is not. The peculiar shape of the narrow valley at the mouth of which it is located compresses the winds and sends them howling down or up the cleft, while the precipitous walls, nearly 2,000 feet high on the east and south, shut out what little sunshine the island can boast.

Here the natives live all the year round, except during the sealing season, when the village is almost deserted. The company has here its stores and dwelling house for the resident agent. The Government has a large building (the office and dwelling of the assistant administrator), a drug store, and a large schoolhouse. The house in which the priest and his family live lies farther off, and is not distinguished from the larger houses of some of the natives. The new church, which was built in 1895 at a cost of $9,000, is quite an attractive building, though entirely too large for the community.

The two "summer" villages in which the natives spend the few months of the sealing season are located on the east side, opposite the corresponding rookeries. The first one from the main village is Karabelni, openly situated among the low sand dunes (pl. 31*a*). All the houses of the natives are small and poorly built huts, many of them being yurts or mud huts. The salt house and the Government's house are the most imposing structures. Occasionally some of the families stay here until Christmas, or even the whole winter, but the Aleuts are too social a people to stand for any length of time such isolation for the sake of thrift or economy. The southern village is Glinka, picturesquely built on the slope of the steep coast escarpment (pls. 34*b* and 35); otherwise its general features are like those of Karabelni.

SEAL ROOKERIES.

The character of the Copper Island seal rookeries, owing to the precipitous nature of its coast and the narrowness of its beaches,[1] is very

[1] So steep are the rocky walls behind the Copper Island rookeries and so close do the seals lie to them that falling masses of earth and rocks have occasionally caused the death of many of the animals. Thus it is recorded (Otchet Ross. Amerik. Komp. za 1849, p. 23) that on the 16th of October, 1849, during an earthquake, a rocky wall fell down, burying a rookery on Copper Island. Another earthslide on one of the Glinka rookeries in 1893 similarly resulted in the killing of many seals.

different from those on Bering Island. There is one quite notable similarity, however, viz, that none are situated on the eastern shore of the islands, in spite of the fact that this side offers plenty of reefy and rocky places which might apparently answer all requirements. There are no records, to my knowledge, which would indicate that seals ever hauled up on the eastern beaches, and there is no reason to believe that they did.

There are two distinct rookeries on the west side of Copper Island, or, possibly we should say, groups of rookeries. However, while at the present day the various hauling or breeding grounds of each group are distinct and separate enough, they are manifestly only sections of the larger assemblage and are therefore most naturally and conveniently treated as such. These two main rookeries, named Karabelni and Glinka, corresponding to the summer villages of the same names situated opposite on the east shore, are located in the southeastern half of the island, about 4½ miles apart.

KARABELNOYE ROOKERY.

The northernmost of the two main rookeries is Karabelni (Karabelnoye lezhbishiche), located south of the village of like name and easily recognized by a very characteristic isolated rock, Karabelni Stolp, which rises a hundred feet perpendicularly out of the water at the western extremity of the rookery (pl. 38).

The "Stolp" is connected with the main beach by a low, flat, gravelly neck, the western portion of which is rocky and covered with waterworn bowlders.

The main coast itself is formed by a series of nearly perpendicular bluffs, the rocky sides of which rise above a narrow beach from 200 to 300 feet, and the only way to observe this rookery is from some exposed points on the top of these bluffs. From their projecting angles, in most cases, long rocky reefs run out into the sea, between which small coves with a narrow gravelly beach offer shelter for the breeding seals and their young. The bays thus included commence at a projecting bluff, between which and the sea there is no passage by high water, situated just west of the "Stolp," the first one between these two points being called Martishina Bukhta. Next, on the east side of the "Stolp," comes Bolshaya Bukhta, as the name indicates, the largest of these bays, followed by three small ones, viz, Staritchkovaya, Dalnaya, and Nerpitcha. In Bolshaya Bukhta the hauling ground is mostly coarse gravels with waterworn stones, up to the size of a fist, strewn over the surface and here and there with large bowlders which have fallen down from the overhanging cliffs. The grounds of the bays to the eastward, on the other hand, are stony reefs of the stratified rock of which Copper Island is mainly built up.

Nerpitcha Bukhta is easily recognized by a graceful waterfall, which overleaps the bluff in a fall more than 200 feet high. It must not be confounded with another waterfall, yet to be described, which forms the characteristic feature of the hauling ground specifically named Vodopad.

Beyond Nerpitcha the bluffs again rise so abruptly as to allow no passage along the beach beneath them; hence the name of this projecting bluff—Nepropusk. Between this point and the next a long rocky reef represents the beach; but the bluffs become gradually lower toward the middle, where a little creek has cut a V-shaped valley and falls over the comparatively low escarpment in a beautiful cascade 65 feet high (pl. 45). From this waterfall the part of the beach between

these points is named Vodopad and the cape terminating it to the east Vodopadski Mys.

This Vodopadski Cape, with its outlying rocks, is the extreme southern point on this part of the coast. It is the promontory seen farthest to the southeast from all points of the coast to the north of it and farthest to the northwest from all points south of it, although it projects but very slightly beyond a line through the westernmost of these points.

From Vodopadski Mys the coast trends a little northward again, being similar in character—viz, a narrow reefy and rocky beach at the foot of the steep bluffs. It is followed by a slight indentation, from which the ascent is so steep and difficult that it has received the name Krephaya Pad (the hard valley). It is followed farther east by another, Nepropusk. Beyond this, a narrow strip of beach is called Malinka Bukhta, the "bay" being chiefly due to the projecting reefs at both ends. It is the last beach upon which seals have regularly hauled up at Karabelni, and is called the "little bay," in contradistinction to the large bay immediately to the east, which is often called Bolshaya Bukhta instead of Serodka—a practice to be discouraged, as it gives rise to confusion with the hauling ground adjoining the Stolp.

A glance at the accompanying map (pl. 11) and the photographs of this rookery (pls. 38 to 40) will show how exceedingly difficult the taking of the skins must be. The bachelors are chiefly driven from the hauling grounds at Karabelni Stolp, Vodopad, and formerly Krepkaya Pad and Malinka Bukhta.

From the Stolp the seals are driven northward along the beach of Martishina Bukhta beyond the promontory, which can only be passed by low water, on to the beach of the rather wide and gently curving Stolbovaya Bukhta. If the number of seals is so insignificant that the skins can be easily carried on the back and the meat is not wanted in Karabelni village, then they are driven across the little rivulet which here runs into the sea and are killed on the beach just west of it. The carcasses are left at the water's edge, for the waves to carry off.

The driveway to Karabelni over the mountains is a long and very hard one, being fully 2½ miles long.

In order to facilitate the ascent up the coast escarpment a stairway has been built of driftwood logs resting on pegs driven into the ground, as shown in the accompanying photograph (pl. 49b). The upper end of these stairs (68 feet above the sea) enters the little creek mentioned above and the driveway proceeds up the narrow valley. The kettle-shaped upper end of the valley, the sides of which form a slope of about 40 degrees, is separated from a similar kettle on the north side by a narrow saddle. This pass I have determined to be 643 feet.[1] The descent is steep, but not so high as on the south side, and the driveway now follows the bed of the little creek, as the narrow V-shaped valley affords no other road. The lower end of the drive, after it enters the grass-covered sandy plain back of the Karabelni village, where the killing grounds are situated, is comparatively easy.

The salt house was formerly situated at the front of the village, east of the river and of the large rock in the bay called Urili Kamen. The beach there is not very safe or convenient for loading the skins into the boats or landing the salt, for which reason a new one has been built at Popofski, the small "bay" just west of Urili Kamen (pl. 63a).

From Vodopad the driveway, if it is deemed necessary to take the

[1] Average of six observations on July 3 to 8, 1883.

meat to the village, is longer by at least a mile over the high plateau northeast of the rookery, besides being very severe in other respects. The grassy slopes of the valley opening at this point are very slippery and steep (about 30°), but the greatest hardship is caused by the exceedingly difficult ascent of the bluff before reaching the valley. The bluff here consists of the naked hard rock, and consequently steps built of driftwood logs, as at Stolbovaya Bukhta, were out of the question. They had to be roughly cut out of the rock itself, as shown in the accompanying photograph (pl. 45), which will give a better idea of this extraordinary place than any description. It will be seen that the side next to the picturesque waterfall is nearly perpendicular—in fact so steep that the men can not follow the drive up on that side in order to urge the seals on and to prevent them from going down over the precipice. To remedy this a rope is stretched from the top down to the beach, as is plainly shown in the photograph to the right of the fall. When seals are driven rags and scraps of paper are fastened to this rope, which is kept in constant motion so as to frighten them and urge them on.

It is hardly to be wondered at that the men prefer to let the seals carry their own skins up this road. The top of these stairs is 65 feet above the sea, and I found it pretty hard work to climb it without carrying anything.

At Krepkaya Pad and at Malinka Bukhta there is no possibility of getting the seals up alive; hence they were killed back from the beach and their skins carried across the mountains. At Krepkaya Pad the men alone did the killing and carrying, while Malinka Bukhta was reserved for the women, who did all the skinning and carried the skins to the salt house. Malinka Bukhta is reached along the beach from Serodka, but between it and Krepkaya Pad there is a nepropusk which can not be passed.

The appended map of Karabelnoye Rookery (pl. 9) was made in 1883, July 3 to 10. The angles were taken with an azimuth compass and the distance measured with pediometer. In 1895 my stay at the rookery was too short to make an independent plane-table survey, but a blue print of the old sketch was placed on the table and a few necessary corrections made. A series of photographs taken at the time have also been used in verifying it.

GLINKA ROOKERIES.

The southern, or Glinka, group of rookeries (Glinkovskoye lezhbishtche) is situated about 4½ miles southeast of Karabelnoye. They contain the most important hauling grounds on the island, but at the same time the most inaccessible. The island is here very narrow, yet the mountains average even a greater height than farther north, and the passes between the short and steep valleys on the east and west sides are also very high. The mountains rise precipitously from the sea, bordered only by a very narrow beach of rocks and stones, hardly deserving the name. All the rocks are here stratified, with a very pronounced dip. The projecting capes run out into jagged reefs formed by the exposed broken strata standing nearly on end, while numerous outlying rocks and stones guard the approaches (pl. 47). Singularly formed rocks and pinnacles carved out by the never-ceasing breakers and saw-tooth promontories mark the ends of the various bays.

The length of the whole beach of this rookery is about 6 miles, but this stretch is not occupied by a continuous line of seals. On the con-

trary, they are gathered in groups at certain points which, for some reason unknown to us, are preferred to others, although apparently equally suitable. These various seal grounds are named as follows, from west to east: Gorelaya, Lebiazhi Mys, Peresheyek, Urili Kamen, Pestshanoye, Pestshani Mys, Pagani, Zapadnie, Sabatcha Dira, Palata, Zapalata, Sikatchinskaya, Gavarushkaya, and Babinskaya Pad.

Of these, Palata (Palatinskoye lezhbishtche) is unquestionably the most important. It is named from the high and sharp promontory which extends farthest out into the sea on this part of the coast, and which somewhat resembles a large house with a steep, peaked roof. The top of it is fully 500 feet above the sea and the walls are very steep, being, in fact, nearly perpendicular on the south side. This is Palata proper. A very jagged reef extends in a southwesterly direction from the foot of it, and to the northwest are several detached rocks. From one of these two of the accompanying photographs were taken (pls. 48 and 49). On the north side this promontory is separated from the high mountain walls back of it by a narrow gully, which toward the sea expands into a somewhat open basin, the bottom and sides of which are lined with a pale buff clay. The beach, a narrow strip covered with large rounded pebbles, extends northward under the clayey banks for several hundred yards, and continues in the same manner under the precipices of one of the higher mountains of this part of the island, rising to 1,400 feet. No particular feature, except a pile of rocks somewhat larger than usual, distinguishes this part of the beach, which is named Sabatcha Dira, the "dog hole."[1]

From here to Pestshani Mys the character of the coast and beach is the same, except that about half way the overhanging cliffs crowd the beach still more closely, with a small reef at their feet, thus forming a "mys," or cape, Zapadnie Mys, probably so called because it is situated nearly due west from Glinka village. The gently curving beach between Zapadnie and Pestshani Mys is called Pagani, the Unclean, for no obvious reason. At this place there is a break in the mountain wall behind, for above the coast escarpment a comparatively wide valley opens up, the drainage from which empties out at Pagani in three distinct streams.

The accompanying photographs (pls. 46, 54*a*) show the character of this beach better than any description.

Pagani terminates at the northern end with Pestshani Mys. This is an exceedingly jagged cape of the sawtooth type, the strata of the rock being nearly vertical and with an outlying detached rock, preventing further passage along the beach. The name, meaning Sandy Cape, has no reference to any characteristic feature of it, but is due to the fact that it forms the eastern termination of Pestshanaya Bukhta,[2] Sandy Bay, which extends from this cape northwestward. The western termination of this bay is marked by a slight projection of the beach and a low stony reef, which forms the great Pestshani hauling ground. A comparatively large stream empties into the bay at its inner end, draining a grass-clad valley of considerable size compared with most other valleys in this part of the island, and the coast escarpment is unusually low.

Beyond this hauling ground the cliffs again approach the sea, and the

[1] There are a number of places on Copper Island called Sabatcha Dira, but they are in all other cases actual holes through the rocks. I have been unable to see the application of the name to that part of the Palata Rookery now so designated. Formerly there may have been such a perforated rock, now crumbled to pieces.

[2] There are at least four different Pestshanaya Bukhta on Copper Island, a source of great confusion.

slightly curved narrow beach, covered with water-worn stones and loose rocks, turns outward in order to pass a slight but very jagged projection of the cliffs, in front of which a low isolated rock on the beach and another in the water beyond the low reef form another attraction for the seals. The rock on the beach, called Urili Kamen,[1] Shag Rock, gives this part of the rookery its name (pl. 54*b*).

The beach from here to the next cape is narrow and rough, covered with water-worn loose rocks from the foot of the steep slope at the back into the sea. This cape terminates in a large, semi-detached, roof-shaped, grass-clad rock, which obstructs the passage along the beach. A low but knife-sharp ridge connects it with the cliffs behind; hence the name of the place, Peresheyek, or Isthmus, and that of the rock, Peresheyekski Kamen.

From this point the last cape seen to the west is Lebiazhi Mys, which is easily recognized by a pair of cone-shaped twin rocks rising from the extreme end of the reef and several single ones of similar shape nearer the cape, as well as by two detached dangerous rocks situated seaward in the direction of the reef, the outer one fully a third of a mile from the cape. The bay between Peresheyek and this cape is called Lebiazhaya Bukhta, Swan Bay; hence the name of the cape. The beach is rocky and stony.

On the other side of Lebiazhi Mys the coast trends more northerly and is visible all the way to Vodopadski Mys, Karabelnoye Rookery. But we are here only concerned with the bay immediately behind Lebiazhi, as it is the last seal ground at this end of the rookery. The character of the beach differs not from the seal ground preceding it. Its name is Gorelaya Bukhta.

Returning to Palata, we notice that from the extreme point of Palatinski Mys the coast trends more easterly. The abrupt walls of the cliffs are even more precipitous, and the beach, utterly inaccessible from the land side, is fringed by wide reefs surmounted by tall isolated rocks assuming the most fantastic shapes, as pillars, pinnacles, towers, etc. Projecting corners hem in snug little coves for the breeding seals, while the outlying rocks and reefs break the force of the angry ocean and afford shelter in quiet pools for the growing pups.

The first of these coves, as the name Zapalata (behind Palata) indicates, is situated immediately under the perpendicular southern wall of Palata itself, and guarded on the east side by the pillar-shaped Stolbi. The beach itself is narrow, but smoothly covered with small stones rounded and polished by the water and of a very light pearl-gray color. This is, possibly, the most important of the breeding grounds, and is accordingly named by Colonel Voloshinof "Glavnoye-Glinkovskoye Lezhbishtche" (Glinka Main Rookery). The name Zapalata, employed by the natives, however, is much preferable, not only because in common use, but also on account of its brevity and euphony (pls. 55, 56).

Sikatchinskaya follows on the other side of the "Stolbi" (pl. 57*b*), possessing the same main characteristics as Zapalata, merging eastward into Gavarushkaya Bukhta.

The end of the latter, or rather the beginning of the next bay, is marked off by a solitary, conical rock rising up in the middle of the reef. It is called Babin, and hence the name of the beach beyond, Babinskaya Bukhta, and the valley opening at the place several hun-

[1] Urili Kamen is a common name for various isolated rocks on Copper Island; for instance, at the West Cape of Glinka Bay and in the bay off Karabelni village.

dred feet above the beach, Babinskaya Pad. The beach is covered with the same water-polished, light-gray stones. This bay at its eastern end is blocked by a very rocky and rough reef, for which the natives only have an Aleut name, Kulomakh. This is the eastern end of the Glinka seal rookeries.

The main killing grounds at this rookery are situated on the eastern side of the island, where the village and the salt houses are located. Only of late years, when many drives have been so small that there were people (men, women, and children) enough to carry the skins on their backs across the mountains, and the meat was not wanted in the village for food, has it been the custom to kill the seals on the west side.

I have already remarked that the hauling grounds east of Palata are utterly inaccessible from the land side. Formerly, when seals were plentiful, the bachelors used to haul up in great numbers on some of these beaches, notably at Babinski, and if the company's steamer, *Aleksander II*, happened to be at the island at a time when the weather and the waves on the west side of the island allowed boats to land there, it was customary for the steamer to take the people around the Southeast Cape and land them at those hauling grounds. The seals were slaughtered and skinned on the beach, while the pelts were taken on board the steamer and salted in the hull.

On the photograph representing Palata Rookery (pl. 50) a small patch of numerous white dots will be observed on the grass-clad hills near the extreme right of the picture. These white dots are sea gulls feasting on the carcasses of a small drive of seals killed here. It will be seen that this drive was neither long nor could it have been particularly severe. Not so the regular driveway from this rookery to the killing grounds at Glinka village, a distance of nearly 2 miles over a ridge more than 1,200 feet high. The slopes to be climbed, or slid down, are in places 35° to 40°. They are partly grass-clad, and then very slippery.

From Zapadni and Sabatchi Dira the driveway is somewhat shorter and the pass over the mountain lower, only 760 feet, but the ascent is exceeding rough. The lower part follows the bottom of a narrow -shaped valley—or rather gully—the bed of a short torrent filled with large bowlders, over which the seals have to struggle hard (pl. 58*a*). Higher up the slope becomes steeper and at the same time covered with a tenacious clay, hence very slippery. Steps have been cut in the ground to facilitate the ascent, but the clayey soil is soon smoothed down and made as slippery as before.

From Pagani the distance is about the same and the pass to be scaled but slightly higher (780 feet), but the ascent is not quite so steep nor nearly so rough, and the drive from this hauling ground may be characterized as the least severe at this end of the island.

The seals hauling up west of Pestshani Mys used to have the longest of all the driveways on the island, and one of the most severe as well. After being driven along the beach for some distance, they entered the Pestshani Valley, where the river has cut down the coast embankment, and then had to climb the first ridge on the east side. If the drive was a large one—and in former days drives of 4,000 seals were not rare[1]—it took too long a time to ascend only in one place, so that one portion was driven over the ridge where it was only about 670 feet high, while the other had to climb at least 900 feet up. On the other side of this ridge was a descent into Pagani Valley, then another hill was ascended,

[1] In 1887 as many as 6,000 seals were taken in one drive at this place, according to Dr. Slunin.

and finally a third ridge, 780 feet above the sea, had to be climbed before the final descent into the Glinka Valley took place. The length of this drive was about 2½ miles, and in warm weather it sometimes took two days to finish it.

This was finally found to be too great a waste of time and energy, and, as more salt-house room was required, it was decided to drive the seals the shortest way across the island, and, as there was a good anchorage and a tolerably decent beach for landing boats, to build a new salt house there. This is now known as the Pestshani salt house (pl. 58c).

This change has shortened the drive from the rookeries west of Pestshani Mys from 2½ miles to 1½. In addition, there is now only one pass to climb, which my aneroid showed to be about 740 feet above the sea. The ascent is not very steep, nor is the road particularly rough, but the final descent to the salt house is simply a "slide." On the whole, it is now the easiest of the long drives at Glinka. This, of course, does not mean that the drive is an easy one, and only a fraction of all the seals driven (in 1895 about one-sixth) gets the benefit from it.

The killing grounds are located on the grassy slope near the beach, just north of the Pestshani salt house. The killing grounds at the Glinka village used to be beyond the houses, but are now moved to near the beach a few hundred yards north of the village. In the latter there are two salt houses close together. One of these has had an addition built to it, so that it is now twice its original capacity (pls. 35, 36).

The map of the Glinka rookeries (pl. 13) is the result of a traverse plane table survey made during the few intervals from August 4 to 11, 1895, in which the rookeries were free from fog or rain. It was very difficult to find a level locality long enough for a suitable base line. After the map was completed, however, I measured off a line 1,000 feet long on the beach in front of the village and sighted it in on the map.

I had with me a sketch map which I had drawn from sketches and angles obtained in 1883. It was found fairly accurate, especially considering the fact that the fog during my visit in 1883 was so perverse that I never obtained a simultaneous sight of both sides of the island.

2.—Robben Island.

DESCRIPTION.

Robben[1] Island, a literal translation of its Russian name, Tiuleni Ostrof, is situated in the Okhotsk Sea, 11 miles southwest from Cape Patience (Mys Terpenia), the end of the curiously long and narrow peninsula on the eastern shore of Sakhalin Island. The position is variously given as 48° 32′ north latitude and 144° 45′ east longitude, or 48° 35′ north latitude and 144° 44′ east longitude (recent Russian charts, while on the manuscript chart of the late Capt. J. Sandman I find given as "corrected longitude," 144° 30′ east).

Not having had an opportunity to visit the island myself, the following description is taken from a number of available sources. The accompanying maps (pl. 6) are copied from recent plans issued by the Russian hydrographic office in 1889.

The island is really hardly more than a large, flat-topped rock, trending northeast by southwest, long and narrow. The entire length of the

[1] Not Robbin Island, or Robin Island, as it is occasionally written.

reefy beach in that direction is about 2,100 feet, while the elevated portion, which rises abruptly to between 40 and 50 feet and tapers off to a point at both ends, measures only 1,400 feet in length. The width of this portion hardly exceeds 150 feet, while the reef surrounding it varies between 50 and 150 feet.[1] On the west side, near the southwestern end, there is a lower place, with somewhat sloping sides, upon which the company's salt house and the barracks for the Aleut workmen and the naval guard are located. A rocky reef extends to the northwest, terminated by a large rock, the Sivutchi Kamen, about 10 feet high, a favorite resort of the sea lions.

There is no harbor or convenient anchorage, and in bad weather vessels have to seek shelter under Sakhalin. Captain Sandman's manuscript map indicates "anchorage anywhere to northwest of island in from 10 to 20 fathoms; 13 fathoms, sandy bottom, 1 mile off, center of island SE. ½ E.; end of South Reef S. by E. ½ E.; end of North Reef and rock ENE. Nearer in rocky bottom."

There is no water on the island.

The climate is naturally more "continental" in its character than on either the Commander Islands or Pribilof Islands, having colder winters and warmer summers, but I am not aware that any regular observations have been published for the island. Mr. C. Carpmael, director of the meteorological service of Canada, has furnished a few figures, but they are apparently only based upon curves in the *Challenger* report and are mere approximations. He states (Fur Seal Arb., VIII, p. 511) that according to these the mean temperature for May would be about 42 degrees, but thinks possibly the mean might be as low as 40 degrees. In June it is "probably about 48 degrees." In July "probably a little under 60 degrees." In August "it must be nearly 60 degrees." In September "it must be a little below 55 degrees." In October "about 44 degrees."[2]

The mean temperature of the surface of the water around Robben Island is given by Makarof as 13° C. (middle of August).

These temperatures are considerably higher than the corresponding ones at the Commander Islands, and lend color to the statements by Captain Blair and Capt. G. Niebaum that the Robben Island seals can be distinguished by experts from those on the Commander Islands, and that they do not mingle with them, being a separate and distinct herd (Fur Seal Arb., III, pp. 193, 204).

Very little is known about the movements of the Robben Island seals, except that they migrate southward. I am informed by Capt. D. Grœnberg, however, that sealers who are said to have followed up the migrating herd assert that these seals come up the Gulf of Tartary and pass through La Perouse Strait into the Sea of Okhotsk. The feeding grounds of the Robben Island seals seem to be unknown.

The knowledge of the condition of the rookery is also highly fragmentary. When the first sealers arrived there, they found the whole beach surrounding the island so occupied by seals that there was no place to effect a landing without driving the seals off. At present the few remaining seals congregate on the very narrow beach on the south-

[1] These figures are taken from Shamof's map (pl. 6). Lieutenant Egerman, I. R. N., gives the following dimensions: Length, 1,960 feet; width, about 300 feet; height, 48 feet (Morskoi Sbornik, 1884, No. 11, Lots. Zam., p. 8). Capt. J. G. Blair says "1,960 feet long by 175 feet wide, and in places 46 feet high" (Fur Seal Arb., III, p. 194).

[2] According to Shamof (Ausland, 1885, p. 537), the mean temperature at Cape Patience, Sakhalin, was 52.2° F. for June, and 62.4° F. for July, 1884.

east side of the island.[1] The bachelors are now hauling up on both sides of the breeding females, and so close that many females are caught in the drives.

The various estimates of the number of seals on this island may be somewhat more accurate than similar figures from the other seal islands, because of the small extent of Robben Reef and the ease with which the rookery can be watched. Thus, in 1871, when Hutchinson, Kohl, Philippeus & Co. took possession of the place, Mr. Kluge found that "there were not over 2,000 seals to be found on the entire island." Capt. G. Niebaum, who visited it at the same time as the representative of the firm, states as follows: "The rookeries were also very small, and contained at that time, of all classes, about 800 seals, as I ascertained by a careful count, and, in addition, a small number in the waters adjacent."[2]

In administrative respect Robben Island is under the jurisdiction of the administrator of the Commander Islands and is included in the lease of the latter. In fact, Robben Island is regarded as a dependency of Bering Island, as the men of the killing gang are taken from that island and the money for the Robben Island seals goes to the Bering Island natives. Since 1885 the Government has stationed a force of 20 sailors and an officer of the navy on Robben Island, in order to protect it against the raiders, but apparently with but poor success, judging from the history to be related further on. This failure is partly due to the fact that on account of the severity of the season the guard has been taken off before the middle of October.

As remarked above, the island is included in the lease of the Commander Islands, and Hutchinson, Kohl, Philippeus & Co. took possession of it in 1871. The Robben Island part of the business was attended to chiefly by the schooner *Leon*, Capt. John G. Blair; mate, Mr. E. Kluge. The name of the schooner belonging to the new company is the *Bobrik* (pl. 59*b*), Capt. D. Groœnberg, master, who for many years was first mate on the old company's steamer *Aleksander II* (pl. 59*a*). The skins have hitherto been shipped to London via San Francisco.

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[1] The breeding ground, according to Dr. Slunin (Promysl. Bog. Kam. Sakh. Komand., p. 12), occupies about 4–5 sazhen by 70–100 sazhen (a sazhen being equal to 7 feet).

[2] Dr. Slunin (Promysl. Bog. Kam. Sakh. Komand., p. 13) has been able to utilize certain reports by some of the naval officers in charge, from which a few interesting facts are noted: "According to the reports of Lieutenants Rosset (1887) and Brumer (1892) the arrival of the first bulls depends upon whether the ice has disappeared along southern Sakhalin or not; but whether there is any ice present in the Bay of Terpenia or at the mouth of the Taraika is apparently of no significance. Thus, in 1891, the bulls arrived very slowly; on June 5 (old style) there were in all 28 males, 65 females, and 1 pup; in 1892 the ice also remained late on northern Sakhalin, and on May 15 (old style) there was not one seal on the rookery, the first bull arriving on the 16th of May (old style). In 1893 the first bulls appeared on May 17 (old style) at the coast, although broken ice was lying along the eastern side; the temperature of the water was 25° C. Ice was covering the deep water of Terpenia Bay. * * * In 1891, at the end of the period of birth, there were on July 3 (old style) 5,000 females and 4,000 pups, showing one-fifth of the females to be virgin. Lieutenant Brumer notes the following special circumstance: In July and the beginning of August (old style) there were about 15,000 to 17,000 seals, but in September the inhabitants of the rookery had increased considerably."

Dr. Slunin himself, in the beginning of May (old style), 1892, calculated the number of seals on Tiuleni to be from 13,000 to 16,000 all told, allowing 3 square feet to each animal, large and small (op. cit., p. 17). In 1892 the first bulls arrived about May 16 (old style), and the first females May 20 (op. cit., p. 27). This is contrary to what he states on page 18, where it is said that in 1892 the bulls arrived about June 15–18 (old style) and the females came ashore on June 26.

HISTORY OF ROBBEN ISLAND.

The history of this little reef is very interesting and highly instructive as showing how nearly impossible it is to extirpate the seals, either by harsh measures on shore or by excessive raids from marauding vessels.

The existence of seal rookeries on Robben Island was probably first discovered by some of the numerous American whalers frequenting Okhotsk Sea in the early fifties. In a recent statement Capt. G. Niebaum alludes to these early visits as follows:

> From information gathered from various sources I learn that Robben Bank was first visited and exploited by whalers about 1852 or 1853, and that in two seasons they obtained some 50,000 or 60,000 skins, almost completely "cleaning it out." I understand that for several years thereafter the occasional vessel which touched there found the rookeries practically deserted. (Fur Seal Arb., III, p. 203.)

Captain Scammon (Marine Mammalia, pp. 150–152) gives an account of a visit of a New London bark to Robben Island in 1854 or 1855, which it may be well to reproduce here:

> In the midst of the Crimean war an enterprising firm in New London, Conn., fitted out a clipper bark, which was officered and manned expressly for a sealing voyage in the Okhotsk Sea. The captain was a veteran in the business, and many thought him too old to command, but the result of the voyage proved him equal to the task. The vessel proceeded to Robben Island, a mere volcanic rock, situated on the eastern side of the large island of Saghalien. Many outlying rocks and reefs are about it, making it dangerous to approach and affording but slight shelter for an anchorage. Here the vessel (of about 300 tons) lay, with ground tackle of the weight for a craft of twice her size. Much of the time fresh winds prevailed, accompanied by the usual ugly ground swell, and in consequence of her being long, low, and sharp the deck was at such times frequently flooded; nevertheless, she "rode out the whole season, though wet as a half-tide rock," and a valuable cargo of skins was procured, which brought an unusually high price in the European market on account of the regular Russian supply being cut off in consequence of the war.

Robben Island was thus "practically cleaned out;" the whaling industry also came to an end, and the very existence of seals on the lonely rock was almost forgotten.

At the breaking up of the great Russian-American Company in 1869 many enterprising citizens of California and Alaska turned their attention to the Pribilof Islands and the Commander group; the Kuril Islands and the Okhotsk Sea attracted the attention of Captain Limachevski. With a schooner manned by Aleuts (Kadiak Islanders) from Urup Island, the station of the Russian-American Company on the Kuril Islands, he sailed, in 1869, to Robben Island. During the fourteen years of rest since the Crimean war the seals had again multiplied to such an extent that they were occupying the entire beach all around the rock, as in the days when first discovered. The Urup Aleuts, who had never had any experience with the driving of fur seals, were afraid of the vast numbers which blocked the way, so that no landing was effected, and Limachevski had to sail away.

In 1870, however, the seals did not fare so well. In that year at least two schooners raided the island. Mr. D. Webster, of Pribilof Island fame, arrived there in the schooner *Mauna Loa*, and the number of skins taken on Robben Island was probably more than 20,000.[1]

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[1] Webster, according to the British Bering Sea Commission, put the number of skins he assisted in taking at 15,000, but they add that "Kluge's estimate of the number taken was 10,000." When reading this report on Bering Island last summer, Mr. Kluge stated to me that he understood Webster's catch in 1870 to have been about 20,000, and that he did not "estimate" 10,000, as alleged by the commissioners, he not having been there at the time. (Rep. Brit. Bering Sea Com., p. 89.)

The island was "practically cleaned out" again, so that when the representatives of the lessees of the Russian seal islands arrived on Tiuleni in 1871, "there were not over 2,000 seals to be found on the entire island." Capt. G. Niebaum, a member of the firm, landed there in August, and seeing the depleted state of the rookery ordered that no killing should take place there that year, nor, in fact, until "such time as seemed prudent to resume, so as to give the rookeries opportunity to recuperate, leaving strict orders to the guard ship to protect them against molestation." The result of this wise order was that in 1873, not more than two years after, the rookeries had so far recovered that sealing could be commenced again on a small scale, and about 2,700 seals were taken that year by the company, "knowing that the killing of the useless male seals would accelerate the increase of the herd. From this time forward the herd showed a steady and healthy growth,"[1] and would probably have continued so had it not been for the unparalleled boldness of the seal pirates. They fitted out in Japan and sailed under various flags, British, German, Dutch, United States, etc., and from about 1879 paid special attention to searching for hitherto unknown seal rookeries on the Kuril Islands and elsewhere in the Okhotsk Sea, as well as raiding those already well known. Robben Island, being conveniently located, poorly protected by a single schooner and a few Aleuts, and absolutely unprotected later in the season, after the company had finished the legitimate catch, was particularly exposed to the ravages of these marauders. The total number of seals indiscriminately slaughtered by them on that lonely rock will never be known, nor, probably, the names of all the vessels that took part. The following few particulars, however, will give a good idea of the slaughter and the methods.

In 1880 the company's schooner *Leon*, Captain Blair, landed at Robben Island with the Aleut workmen on June 13 and found there already two schooners, the *Otsego* and the *North Star*, though they had been unable to do anything, as the seals had not yet arrived. During the summer schooners were scarce. On June 22 the *Vladimir* touched there; on July 16 the *Stella* came around, and on July 20 the *Flying Mist*. On September 4 the company's steamer *Aleksander II*, Captain Sandman, called and took off the 3,330 skins. Sandman records in his log that he found "on shore a considerable number of pups and females, but very few killing seals." After the lessees' vessel left, however, things became lively. When Capt. A. C. Folger arrived in the schooner *Adèle* he found 11 schooners already assembled there, and he states (Fur Seal Arb., VIII, p. 662) that "altogether we got 3,800 seals; we killed them all or drove them away." It is possibly to the raids of this year that W. F. Upson refers (tom. cit., p. 724) when he states that he "was on the first schooner that raided Robben Island, the *Matinée*, fitted out by H. Liebes, T. P. H. Whitelaw, and Isaac Leonard," of San Francisco.

In 1881 a number of schooners again hovered around the island, waiting for the guard ship to leave, even as late as November. About the first of that month Mr. E. P. Miner arrived in the *Annie Cashman* and met three other schooners there. "We went ashore and clubbed the seals. Our schooner's share was 800 skins." (Fur Seal Arb., VIII, p. 701.) Those four schooners, therefore, probably secured about 3,200 skins.

This feature of the schooners raiding in concert is well worth noticing. Captain Folger corroborates it: "We worked together, and the

[1] Niebaum, Fur Seal Arb., III, p. 203.

schooners would divide up." The latter also mentions how the schooners succeeded in eluding the vigilance of the guard ship and making raids during its absence:

> We had the guard [i. e., the Aleut workmen] in our pay, and when the *Leon*, which had been sent there to guard the place, would go away, lights would be put out, and we would come over from Cape Patience, where we had men on the lookout constantly, or if we got impatient the fastest sealer in the fleet would go there and be chased by the *Leon* (a sailing vessel), and the others would make the raid. (Fur Seal Arb., VIII, p. 663.)[1]

The experience of the authorities with the raiders in 1881 led to more vigorous attempts to protect the rookeries. The first step was the issue of the consular warning referred to in detail elsewhere in this report (chapter on Raids of Commander Island Rookeries) and to enforce it a stronger force of natives was sent to the island in 1882. They were well armed and under the command of a noncommissioned kossak officer. The proclamation and the presence of patrolling men-of-war had evidently some restraining effect upon the pirates in so far as the Commander Islands were concerned, but the result was only that the raiders concentrated their efforts on Robben Island. At least 13 schooners hovered about that rock in 1882, and, emboldened by the previous success, they actually carried the island by armed force. As the greatest loss to the island usually was inflicted after the guard ship had left in autumn, most of the raided seals being females and young ones of both sexes, it was determined that the guard should winter there, and the men consequently remained when the *Leon* sailed. Shortly after, 6 schooners anchored off the island and each landed 10 well-armed men. The Aleuts, thus outnumbered, did not dare resist, and were locked up in the house. The crews of the schooners then quite leisurely went about the clubbing of the seals. It is probably to this raid that E. P. Miner, schooner *Otome*, refers when stating that the raiders "landed and killed about 12,000 seals" (Fur Seal Arb., VIII, p. 701). The natives, being thoroughly intimidated and seeing the smoke of a steamer, took to their boat and made for it. It proved to be Philippeus's supply steamer *Kamchatka*, on its return trip along the Okhotsk coasts. The men were taken to Korsakovski, a port near the south end of Sakhalin, and wintered there.

This is the story of the kossak and natives. On the other hand, it has been asserted that they were bribed. So far as the result is concerned, it matters very little which story is the true one. The rookery was now becoming so depleted by illegal, reckless, and indiscriminate slaughter that it was seriously considered by the authorities whether it would not be the better policy to kill off the few remaining seals and to abandon the island. If the seals were not killed by the company they were taken by the raiders, extermination was sure to follow, and it was only a question who were going to have the skins, the legitimate lessees, who were paying for the privilege and acting under contract with the legal owners of the island, the Russian Government, or the pirating poachers, who knew well that they were doing lawless acts, and who, moreover, also knew that their penalty for the criminal business, if caught, would be confiscation and, possibly, hard work in the mines of Siberia. Under those circumstances it is hardly to be won-

[1] So bold did the schooners become that when Lieutenant Shamof, of the cruiser *Rasboinik*, in 1884 sent to guard Robben Island, landed near Cape Patience, Sakhalin, on May 21, he found there two sheds containing about 15,000 pounds of salt, etc., three skiffs, and a whaleboat, and six Japanese, the whole outfit belonging to a schooner from Japan, of which a certain Johnson was said to be the captain (Ansland, 1885, pp. 536-537).

dered at that the decision was to disregard the distinction between sex and age in the killing by the lessees, as it was done by the poachers. This was undoubtedly done in 1883, and it is quite possible that some of the men, when more seals had been clubbed than the little gang could properly skin, in their zeal may have slashed the skins to prevent the raiders who were continually hanging around, among them the schooners *North Star*, *Otome*, *Helene*, and *Adèle*, from profiting to the extent of even having the seals clubbed for their benefit. It is utterly unjustifiable to characterize the proceeding as "barbarous" in contradistinction to that of the poachers. The number of seals thus killed has been grossly exaggerated. Some of the poachers have estimated it to be from 12,000 to 20,000 seals, but it is pretty safe to say that there were not nearly so many seals at that time on the island, all told. The number mentioned by another of the poaching captains (Fur Seal Arb., VIII, p. 664), viz, 3,500, is undoubtedly much nearer the mark.

Notwithstanding all this, enough seals hauled up on Robben Island in 1884 to justify the lessees in continuing the regular killing that season. They were particularly encouraged to do so since the Government had stationed a man-of-war, the *Razboinik*, to guard the rookery. Four seizures were made, among them the German schooner *Helena*, Captain Golder, which had "raided that island five years." Others escaped, like the *Felix*, which got 500 skins. (Fur Seal Arb., III, p. 358.) The killing of other classes of seals by the company on shore, however, was brought to a stop by Col. Nicolai Voloshinof (since deceased), who visited the island that year on a tour of inspection.

The Government, seeing that energetic means had to be taken if the seals were to be protected at all on Robben Island, in 1885 stationed a regular naval force of 16 sailors of the Siberian flotilla and 1 officer on the island, which was removed, however, before the middle of October. The company that year obtained less than 2,000 skins, but the schooners, late in autumn, made additional hauls. Thus the *Penelope*, Capt. E. P. Miner, on her part alone got "about 800 skins." (Fur Seal Arb. VIII, p. 702.) Captain Blair, of the *Leon*, estimated the number of seals on the island that year to be about 6,000.

For four years, 1886 to 1889, inclusive, the company refrained from taking any skins on the island; but there were still some left for the raiders, who appear to have visited the rock every year. The British Bering Sea Commission states that "these schooners must have obtained at least 4,700 skins" (Rep., p. 89). In 1890, the last year of the lease of Hutchinson, Kohl, Philippeus & Co., 1,456 skins were secured by them.

With the lease of the islands by the Russian Seal Skin Company the regular killing was again resumed in 1891, but the poor result led to the abandonment of the attempt in 1892. In 1893 the rookery had recovered sufficiently to yield the company 1,500 skins; 1,000 were taken in 1894, and 1,300 in 1895.

In all these years the raiders continued to prey upon the island in the autumn, with but scant danger of being captured. In October, 1891, however, Captain Brandt, commanding the *Aleut*, upon returning to the island unexpectedly, captured two schooners, the *Arctic* and the *Mystery*, both fitted out in Yokohama but flying the British flag and having 1,500 seal skins on board. (Brit. Bering Sea Comm. Rep., p. 89.)

The latest raid on Robben Island was undertaken last autumn. On October 29, 1895, the British schooner *Saipan*, sailing from Yokohama early in October, ostensibly on a shark-fishing expedition, landed 17 of her crew on Robben Island. She sailed away, promising to return in eight days. In the meantime the Russian transport *Yakut*, which did

patrol duty around the Commander Islands during the summer, arrived and found the 17 men with a great number of slaughtered seals. They were arrested and brought to Vladivostok, where she arrived about November 6. The schooner returned to the island too late, and thus escaped capture.

In addition, there is no doubt that the Robben Island herd must have suffered somewhat from pelagic sealing proper, though the extent can not be known.

Capt. D. Grœnberg, of the *Babrik*, in 1895 reported that females were present in fair numbers, and that the proportion of bulls to females was about 1 in 40. The weight of the skins taken was good, and yearlings were quite scarce. He also mentioned having observed an unusual number of dead pups.

Number of skins taken by the lessees of Robben Island from 1871 to 1895.

Year.	Seals.	Year.	Seals.	Year.	Seals.
1871	0	1880	3,330	1889	[illegible]
1872	0	1881	4,207	1890	1,[illegible]
1873	2,604	1882	4,106	1891	[illegible]
1874	2,414	1883	2,049	1892	[illegible]
1875	3,127	1884	3,819	1893	1,[illegible]
1876	1,528	1885	1,883	1894	1,[illegible]
1877	2,949	1886	0	1895	1,[illegible]
1878	3,140	1887	0		
1879	4,002	1888	0	Total	[illegible]

3.—Other Islands.

Omitting all references to breeding rookeries on the mainland of Kamchatka as based upon hearsay, and in all probability resting on misidentification of young sea lions, it may be well in the present work to mention those localities in the Okhotsk Sea, besides Robben Island, where seals are said to haul out to breed.

ST. IONA ISLAND.

This is a small island, about 2 miles in circumference, situated in 56° 25′ north latitude and 143° 16′ east longitude, 120 miles north of the northern extremity of Sakhalin Island and a little more than 150 miles east of Port Ayan. It is said to be about 12 feet high and to have a crowd of detached rocks lying off its west side.[1]

William Hermann, a seal hunter of San Francisco, states that in 1890 his schooner got 283 seals on the island of St. Iona; that, altogether, 700 seals were obtained there that year by three schooners, and that in 1891 he was there again, and got 551 seals in the schooner *Arctic:*

> These were got hauled up on the rocks, and were first discovered by Captain Pine, of the *Arctic*, in 1889. Eight years ago Captain Peterson, of the schooner *Diana*, of Yokohama, was there, and there were no seals there (Fur Seal Arb. VIII, p. 709).

This last paragraph does not necessarily mean that we have to do with newly formed rookeries on St. Iona. In the first place, it is not

[1] St. Iona Island, in latitude 56° 22½′ N., longitude 143° 15¾′ E., is merely a bare rock, about 2 miles in circumference and 1,200 feet high, surrounded on all sides, except the west, by detached rocks, against which the waves beat with great violence, and which probably extend a considerable distance under water. With the island bearing north, distant 12 miles, Krusenstern had 15 fathoms water, but when it bore west, about 10 miles, no bottom could be obtained with 120 fathoms. (China Sea Directory, IV, 1884, p. 178.)

stated at what date the island was visited; in the second, the seals may have been easily overlooked. I will mention an instance to show this. In 1881 Capt. J. Sandman, in the *Aleksander II*, in passing the Kuril chain was looking for the possible existence of fur-seal rookeries on the uninhabited islands. His attention was particularly drawn to Sredni Island, quite a small and insignificant affair. He happened to approach it from the Pacific side, and seeing nothing but sea lions went away. Imagine his chagrin when he heard that Mr. Snow landed on the island that same season, taking several thousand seals. They were located on the Okhotsk Sea side.

SHANTAR ISLANDS.

It has been supposed upon the "very categorical statement" of the captain of the *Walter L. Rich*, and of Captain Powers, that fur seals occur at the Shantar Islands (a numerous group of large and small islands in the Shantar Bay, 55° north latitude and 138° east longitude), and it is quite possible that such is the case.[1] I am also told that seals have been taken on a small island close to the Okhotsk Coast.

It is believed that both the company and the Russian Government possess more definite information about these various islands than has been given to the public, but that it has been withheld so as not to invite raids by sealing schooners. In the spring of 1895 the authorities in St. Petersburg granted the Russian Seal Skin Company the right to take seals on all the islands, known and unknown, upon the payment of a stipulated tax and upon condition that a Government officer accompany the vessel dispatched by the company.

III.—SEAL LIFE ON THE COMMANDER ISLANDS.

HISTORICAL AND GENERAL.

The northern fur seal (*Callotaria ursina*) was known to the natives of Kamchatka and the invading Russian promyshleniks long before the islands to which they resort to breed were discovered. The seals were seen to arrive in spring, on their way north and east, and to return in autumn, and the correct conclusion was formed that the seals went to some unknown coast to bring forth their young.

The discovery of Bering Island revealed this unknown coast. Steller, the naturalist of Bering's expedition, had a whole spring season on the island in which to study their habits, and that he made good use of it is evidenced by the account he gave of these animals in his famous

[1] Shantarski Islands lie off the western coast of the Sea of Okhotsk, about 150 miles northwest of Cape Elizabeth on Saghalin Island, and although the largest island (Great Shantar) is 35 miles long, east and west, and about the same distance broad, it does not appear to afford any port or shelter, though its southwest point projects to the southwest, so as to form a bay on the south side of the island. Between this bay and the nearest point of the continent, 14 miles distant to the southwest, are two islets surrounded by rocks and reefs. Soundings of 30 to 40 fathoms over a bottom of stones will be found at 8 to 10 miles to the eastward of the group. The tides run from 1½ to 2 knots an hour.

To the southward of the south points of Great Shantar Island are some small islands which have not been examined.

Fekshptoff Island.—At 6 miles from the west side of Great Shantar is Fekshptoff Island, 20 miles in extent, NE. and SW., and 10 miles wide, but it has no port nor shelter (China Sea Directory, IV, 1884, p. 178).

memoir, "De Bestiis Marinis," published in 1751 in St. Petersburg.[1] In this paper, written in the Latin language, and finished on Bering Island for publication, he established the salient points in the natural history of the fur seal. Two figures, one of a bull (fig. 1) and one of a female (fig. 2, pl. XV), probably made by the artist Berckhan, as shown by Dr. E. Büchner (Mém. Ac. Imp. Sc. St. Pétersb. (7), XXXVIII, No. 7, pp. 12–13), accompany the descriptions. Fig. 2, at least, is a fairly characteristic representation of a bull, and superior to several figures published much later.

Steller described in some detail the external and internal anatomy of the fur seal, or sea bear, as he called it, and gives a pretty accurate account of their migrations and their habits on the island during the breeding season. He stated that they are polygamous, each bull having "8, 15, to 50 females;" describes the harems and the bravery of the bulls fighting for the possession of the females; the birth of the one pup shortly after the arrival of the mothers; the nursing and the play of the pups; the long fast of the bulls on the rookery, etc. In fact, he covered nearly all the essential features of their lives. Later researches have made but few corrections, and the additions have been those of detail and elaboration.

Such detail and elaboration was to some extent furnished by the venerable "apostle of the Aleuts," Ivan Veniaminof, who gathered his information on St. Paul Island, Pribilof group, more than eighty years later than Steller. A very precise and concise account, both of the natural history of the animal and of the sealing business, communicated by Veniaminof to Admiral von Wrangell, then chief manager of the Russian-American Company, was published in 1839 by the latter in the German language,[2] and was thus made easily accessible to the scientific world of his day. His somewhat more voluminous account in the Russian language did not appear until the following year.[3] He carefully distinguishes the various classes of seals—the *sikatchi*, or old bulls; the *polusikatchi*, or young bulls; the *holustiaki*, or bachelors; the *matki*, or mother seals; the *kotiki*, or pups, and the yearlings. The sikatchi in spring arrive first on St. Paul Island, about April 20 (old style; May 2 new style), "even if the island is still beset by ice,"[4] and take up the same place as the previous year, being extremely fat upon

[1] Novi Comment. Acad. Sc. Imp. Petrop., II, pp. 289–398; pp. 331–359 relate entirely to the fur seal.

[2] Statistische und Ethnographische Nachrichten über die Russischen Besitzungen and der Nordwestküste von Amerika. Gesammelt von dem ehemaligen Oberverwalter dieser Besitzungen, Contre-Admiral *v.* Wrangell. St. Petersburg, 1839, 8 vo. XXXVII+332 pp. and map; pp. 39–48 treat of the "Seebär. *Phoca ursina.*"

[3] Zapiski ob Ostrovakh Unalashkinskago Otdiele. St. Petersburg, 1840, 2 vols.

[4] The arrival of first bulls on Bering Island rookeries are reported for a few years, as follows:

Date.	Number of bulls arrived.	Locality.
1879, May 5	2	North rookery.
1880, April 27	3	Do.
1881, May 20	2	South rookery.
1882, April 19	4	North rookery.
1883, May 23	2	South rookery.
1884, April 27	2	North rookery.
1895, May 10	1	Do.

On Copper Island the first bulls, 7 in number, were observed in 1895 on May 13.

their arrival. They pass most of the time sleeping, before the arrival of the females, when the sikatchi tries to get hold of as many as possible for his harem, in which he succeeds not without bloody contests with other males. "From 1 to 150 females have been observed with one sikatch, the number depending simply upon his bravery. He is the unrestricted lord, the guardian and protector of his harem. He takes no food whatever when staying ashore."

The polusikatchi and holustiaki arrive later and congregate in large companies upon the grounds which are usually separate and more distant from the sea than the breeding grounds. The females commence to arrive on May 26, rarely on May 21, shortly before giving birth to their single pup, the season for the delivery being from the end of May "through the whole of June, and even as late as July 10." The kotiki arrive usually by southerly winds, but not with the same regularity as the others, all not having arrived even by the middle of June, "as there are instances of yearlings having arrived as late as July." The sikatch comes together with the female some time after the birth of the pup, but only once; he "is able to cover from 21 to 25 females in twenty-four hours." The pups "feed exclusively upon the milk of their mothers until leaving the land. The female never suckles her young while in the water, but coming ashore for that purpose attends her offspring in a resting position." The pups do not go into the water until they are 30 to 35 days old, becoming familiar with the water when 40 to 50 days of age. "The color of the pups when born is black, but from September 10 changes to gray, the old hair being cast off." The seals leave the island (St. Paul) gradually, beginning about October 5, and always with north and northwest winds, the young ones remaining longest. A few old bulls may occasionally be seen in November, or even December, but none in January or February. "Very rarely two or three sikatchi show themselves again in March, but always for a very short time only."

I have thought it worth while to give the above short summary of the natural history as it was known in 1840, since it has been asserted that from the time of Steller to about 1870 "the scientific world actually knew nothing definite in regard to the life history of this valuable animal." Not even the pictorial representation of the northern fur seal in that period was so bad as it has been made to appear, as will be plain from an inspection of Choris's drawing of a fur-seal rookery on St. Paul, published in 1822 as Plate xv of his "Voyage pittoresque autour du Monde" (Fol. Paris, 1822), of which I append a greatly reduced copy on plate 59.

Since Veniaminof's account no original contributions to the natural history of the fur seal, of any magnitude, appeared until the studies of Scammon, Bryant, and particularly Elliott were given to the public in the early seventies. These, with the bulky literature which sprang up as part of the "Fur Seal Arbitration" case, are too well known to need any further comment in this place.

The natural history of the Commander Islands seal is essentially that of the Pribilof Islands seal. Even their migrations, although along entirely different and distinct routes, show parallel phenomena. The route of the Commander Islands herd, as we have seen, was known to Steller in a general way, but it is only recently, since the pelagic sealers are following the migrating herds, that the routes have become known in detail. Mr. C. H. Townsend, the naturalist of the United States Fish Commission steamer *Albatross*, has made a special study of this branch of the subject, and has kindly furnished me with the following notes

relating to the migrations of the Commander Islands herd as shown by the records of the pelagic sealers:

Pelagic sealing off the coast of Japan usually commences about the middle of March and lasts until the middle of June. The seal herd appears to be massed off the coast between the latitudes of Yokohama and Cape Noishap (the eastern point of Yesso Island) in March, April, and May. In March sealing commences off Honds Island (Nipon); in latitude 36°, where seals are also of common occurrence in April, but they are then moving slowly northward. In May the best sealing is found south and east of Yesso Island, Cape Yerimo (the southeastern point of Yesso) being a favorite sealing ground. In June they are usually a little farther north, being taken generally off the eastern coast of Yesso and the most southerly of the Kuriles. They are also taken in June off the most northerly Kuriles, but the herd is then farther off shore and more scattered.

In the Japan region proper, sealing is carried on from the coast out to a distance of about 300 miles, while in February straggling seals have been taken as far south as the Bonin Islands. Seals occur in the Sea of Japan, catches having been made at several points there and in La Perouse Straits by the schooner *Penelope*, in a voyage around Yesso Island during the past season.

Sealers crossing the Pacific in the latitude of Yesso Island pick up seals at many points between Japan and the longitude of 180°. In June and July scattered bands of seals, presumably of the Commander Islands herd, occur 500 or 600 miles south of the western Aleutian Islands.

The charts accompanying my report on the fur-seal fishery for 1895 (Senate Document 137, part 2, Fifty-fourth Congress) show the positions where seals were taken by 20 vessels sealing off the coasts of Japan and Russia during the past four years.

LATITUDE IN THE PHENOMENA OF SEAL LIFE.

It can be safely said that most of the points in the life history of the fur seal have been cleared up, in so far as they can be cleared up by direct observation, but the recent activity for information in this matter resulted also in a vast accumulation of misinformation gathered by and from persons either untrained in scientific methods, inexperienced in this particular subject, or prejudiced in favor of some pet theory, or biased by political considerations. This unnatural history of the fur seal has caused doubts and confusion in the minds of those who have to trust to the literature for their information as to the truth of even some of the most easily observed and most firmly established facts. Renewed investigations have therefore become desirable.

Aside from the mass of downright misinformation, a good deal of harm has been done by the often too sweeping generalizations based upon a few isolated facts and caused by ignorance of the true relations of the latter as exceptions and not as rules.

It must not for one moment be imagined that the lines are as tightly drawn in nature as in many books and reports. It will probably be possible to cite more or less isolated occurrences contrary to nearly every habit of the seals as generally outlined. These exceptions are not frequent enough nor important enough to affect the general result, and it may be confidently asserted that the investigations which have of late been carried on by the American Bering Sea Commission and quite recently by the United States Fish Commission have brought out correctly the main facts relating to the life history of the seals.

We have frequently seen, however, that the various exceptions alluded to have been brought forward in the controversies relating to this theme as particularly essential, thus obscuring the main questions, while, on the other hand, conditions have been described and depicted as so uniform and stable that it has been easy for the opposite side to controvert these assertions, thus throwing doubt upon the correctness of the whole argument and the soundness of the conclusions. It may be useful, therefore, to review a few of these questions.

A protracted stay at the rookeries reveals two facts. The one which probably first impresses the observer is the curious stability of the general outline of the groups of breeding seals, especially if the comparisons be made at frequent intervals during the earlier part of the season. The masses of seals assume certain definite shapes which in many cases have no apparent relation to the nature of the ground upon which they are lying. Thus, on the North Reef Rookery on Bering Island, a very peculiar feature of the distribution of the breeding seals this summer was a narrow band of seals which extended obliquely across the northern end of the "parade ground," cutting off from the latter a small oval portion, visible in most of the photographs (pls. 19, 21, 22) and also indicated in the map (pl. 8), and connecting the masses of seals on the western side of the reef with those on the eastern side. I have walked over the territory thus curiously occupied many a time, but I have failed to find any difference in the ground which will account for this belt or answer the question why the seals do not also occupy the bare oval island it surrounds.

To appreciate this general stability of the outline, it is necessary to have had an opportunity to observe the rookery for some length of time. A person who had only a few days at his disposal for examining the same rookery might, on the other hand, be impressed by the fact that on two different days, or at different hours of the same day, the outlines thus referred to present entirely different aspects, and if he offered photographs in evidence of this fact he might seemingly prove the instability of these lines. Thus, the "band" of seals on the North Reef Rookery above alluded to did occasionally entirely disappear, particularly during the warmer portion of bright, sunny days, or after the rookery had been disturbed by a recent drive (see pl. 26).

Nevertheless, this "band" was a very characteristic feature of the seals on that rookery. Single photographs are therefore of no particular value for comparison from year to year unless they are taken by a person familiar with the characteristic distribution and the view is selected by him for that particular purpose. The main reliance must, therefore, be placed upon the observer, and his statements must be received in accordance with his known experience, accuracy, and intelligence.

PROPORTIONATE NUMBER OF SEXES AND AGES ON ROOKERIES.

A question which of late has been given considerable prominence is that of the relative number of breeding females and old bulls on the rookeries. Upon this, and upon the closely connected one as to the number of females a bull is able to serve, there has been a great diversity of opinion.[1] My experience this summer leads me to the belief that, *on the whole*, a bull is able to take care of as many females as he can keep around him. There is undoubtedly great individual differences in this repect, some bulls being stronger than others, but I think it can be safely asserted, *as a rule*, that the procreative power of the bull is in direct proportion to his general physical strength. I think it also sound to assume that, *as a rule*, a bull physically strong enough to live through the winter gales and the vicissitudes of his winter wanderings

[1] While maintaining that the value of the guesses as to the number of females a bull is able to serve is of necessity very dubious, I may mention that Mr. Kluge, who for eight years spent the summer upon Tiuleni Island with the seals practically under his very eyes the whole season, informed me this summer that "he does not for a moment believe that twenty-five females to a bull are in the least too many," though he did not venture to guess at the maximum.

and to return to his place on the rookery is also strong enough to fulfill his duty there. I have purposely emphasized "on the whole" and "as a rule," because I can easily imagine individual cases of, for instance, accidentally castrated bulls, or old feeble ones who might have the good fortune to meet with unusually favorable conditions during their winter migrations, etc., and because I am quite willing to admit that a number of such bulls may be found on each rookery. These exceptions, however, do not materially alter the above propositions as relating to the whole population of the rookery.

The train of reasoning which led me to the above conclusions is as follows: Some of the most noteworthy of my observations this summer on the Commander Islands establish the facts (1) that the decrease in the killable seals was most marked on Copper Island; (2) that there was a full complement of pups as compared with breeding females on both islands; (3) that there was an ample supply of bulls, old and young, on Copper Island, while on Bering Island they were much less numerous as compared with the number of females. I was informed that the latter condition was not peculiar to the present year (1895) alone, and it is also particularly mentioned in Mr. Grebnitski's report for 1893. It would therefore seem as if the different proportions between the sexes on the two islands have had no visible influence upon the number of pups born.

The soundness of the above deductions may receive corroboration, or the reverse, by observations on the South Rookery on Bering Island in 1896. On that rookery the disproportion between the two sexes was excessive in 1895. According to reliable information, the number of bulls on the whole rookery did not exceed five.[1] Judging from what I saw of this rookery during two visits, I should place the number of breeding females at about 600, possibly only 500. It would be a comparatively easy matter to observe this year whether the number of pups born be very markedly small in proportion to the number of females hauling out.

On the large rookeries it is difficult, if not impossible, for various reasons, to correctly estimate the average proportion between the bulls and the females, and particularly so on Bering Island, because the bachelors to so great an extent haul up between the breeding females. Mixed in among the latter in this way, it is next to impossible at long range to say, with any approach to accuracy, what the proportion between these two classes is.[2] In general, the difficulty lies in the fact that the individual harems differ so greatly in size. Thus, during the visit to Kishotchnaya Rookery, Bering Island, on July 9, Mr. Grebnitski counted several harems which contained all the way from 12 to 93 females or more. But there is still another serious difficulty, which is due to the constant going and coming of the females, so that the number of females in the individual harem fluctuates between 0 and the maximum, according to the time of day or condition of weather. Thus, on the 16th of July, on the same rookery, I counted a harem having 16

[1] When I visited the rookery on August 17 the bulls had already left. It was rumored in the village that there had only been one bull, but Nikanor Grigorief, the native in charge of the killing there, informed me that the actual number was five.

[2] It is held by some that the natives have such a marvelously keen eye and discriminating power as to enable them, at least, to make such an estimate. At one time I accepted this as a matter of faith, but my experience last summer—to be detailed further on—has convinced me that the natives are not particularly gifted in that respect. As a matter of fact, their estimates are about as much guesswork as that of the white people, only that from their greater familiarity with the ground and the seals they are apt to guess more closely.

females, which, upon a recount a few hours later contained 23, "while some of the other bulls were entirely deserted."[1]

I have above alluded to the difficulty of discriminating at a great distance between the females and the killable bachelors when mixed on the breeding ground. The difficulty is not confined to these two classes alone. The experts profess to be able to separate the bachelors into yearlings, 2-year-olds, 3-year-olds, 4-year-olds, and 5-year-olds, and in the descriptions and discussions we find these classes mentioned in such a way as to lead to the impression that they are easily recognized on the rookery or the killing ground, but nothing can be further from the facts. With hundreds of dead seals before me, I have been unable to draw any line between the various ages, nor has anybody present been able to point them out to me.

I have submitted elsewhere in this report a series of weights of skins (p. 109) which shows beyond a question that there is an unbroken series of all sizes from the smallest to the largest. The whole question resolves itself into a mental sorting of the killable seals into a number of classes, calling the smallest 2-year-olds, the largest 5-year-olds, and roughly distributing those in between among their respective classes. The yearlings, however, form a fairly well-marked class by themselves, as do, of course, the bulls—features not apparent in the tables of skin weights alluded to, from the fact that these classes are not killed.

The fact that even the natives are not always able to tell the female from the bachelors on the rookeries was curiously proven to me one day at Glinka, Copper Island, when Aleksander Zaikof and the chief, Sergei Sushkof, had a somewhat heated controversy over the question whether a certain body of seals on the Urili Kamen Rookery consisted of bachelors or females. Both of the men are among the most experienced and intelligent on the island. Yet it was only because Sushkof had been stationed the whole season at Glinka, while Zaikof only arrived with us the day previous, that he was regarded to be in the right.

But even at closer range it is sometimes difficult to distinguish the sexes. On the killing ground, where the teeth of the seals are easily seen, there is, of course, no special difficulty, and mistakes are seldom made; not so in the drives, however.

During a small drive at Glinka, Copper Island, August 8, 1895, about 300 seals were made to cross the mountain pass (about 800 feet) in three main divisions, no less than 30 grown men taking part in the driving. Halfway up one of the men declared that there was a "matka" in the drive. It was questioned, but upon closer scrutiny he was found to be right. It was not until the final sorting before the killing took place that several females were discovered in the flock.

As an additional indication of the lack of definition of the different classes of seals as expressed in their sizes, I append a few tables of measurements taken from the freshly killed animals.

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[1] The number of animals and the proportion of the sexes on North Rookery, Bering Island, during July, 1893, as quoted by Dr. Slunin (Promsyl. Bog. Kam. Sakh. Komand., p. 9), from the official journal of the overseer (offitsialni dnevnik nadziratelia) are worse than useless. The numeration by the overseer in question is the worst kind of guesswork, if not entirely fictitious. Dr. Slunin's remark that the conclusions to be made from those figures would be strange (stranni) is certainly appropriate.

Measurements (in millimeters) of fur seals (Callotaria ursina), Bering Island, North Rookery, July 30, 1882.

No.	Sex.	Total length.	Fore legs.	Hind legs.	Girth behind fore legs.	Nose to eye.	Nose to ear.
1	Male	1,780	495	555	910	105	212
2	do	1,660	465	475	920	95	205
3	do	1,560	480	495	880	95	184
4	do	1,550	390	490	890	92	204
5	do	1,430	430	465	790	83	175
6	do	1,390	390	470	860	85	180
7	do	1,380	400	455	795	85	175
8	do	1,345	360	455	800	90	175
9	do	1,340	370	440	820	90	180
10	do	1,330	360	440	870	82	185
11	do	1,260	405	450	710	85	182
12	do	1,250	360	400	780	82	165
13	do	1,205	325	410	775	82	175
14	do	1,200	292	380	700	75	165
15	do	1,185	300	385	750	68	152
16	do	1,180	330	415	810	85	180
17	do	1,170	345	400	750	88	166
18	do	1,140	315	395	700	75	165
19	do	1,125	350	385	730	85	184
20	do	1,100	300	355	710	75	168
21	do	1,035	255	340	620	73	156

Measurements (in millimeters) of specimens of fur seals collected for the United States National Museum at North Rookery, Bering Island, August 20, 1883.

	No. 2519, male.	No. 2520, male.	No. 2521, female.	No. 2522, male.	No. 2523, male.	No. 2524, male.	No. 2525, male.	No. 2526, female.	No. 2527, pup.	No. 2528, pup.	No. 2529, pup.
Total length	1,495	1,930	1,283	1,495	1,475	1,285	1,085	1,025	800	800	785
From nose to end of outstretched hind feet	2,505	2,450	1,650	1,935	1,935	1,655	1,390	1,255	1,040	1,030	965
From nose to armpit	1,125	980	685	780	775	660	605	520	410	427	375
From nose to eye	110	98	67	78	90	80	72	60	55	59	52
From nose to ear	214	213	168	183	173	158	154	148	120	120	111
Distance between eyes	98	104	70	83	72	71	70	70	59	55	54
Distance between ears	183	178	138	150	140	138	120	125	99	104	98
Length of ear	52	52	45	53	53	47	39	46	38	42	32
Length of longest mustache bristle	195	113	125	185	177	105	95	87	70	67	66
Length of fore limb	530	540	345	500	515	395	300	305	255	268	220
Width of fore foot	215	223	123	160	165	125	107	117	100	99	85
Length of hind limb	615	597	415	485	507	420	350	295	216	275	210
Width of hind foot at tarsus	130	135	95	112	113	85	80	70	65	67	60
Width of hind foot at end of toes	250	285	170	245	202	177	160	155	135	128	125
Average length of toe flaps	230	230	162	190	196	161	115	102	88	85	68
Length of tail	55	50	53	55	55	47	46	57	25	29	29
Distance between tips of outstretched fore limbs	1,770	1,740	1,205	1,445	1,370	1,085	960	855	705	720	650
Girth of neck behind the ears	580	598	405	475	470	405	360	355	330	332	404
Girth over the shoulders	1,150	1,205	750	950	930	820	680	600	455	480	465
Girth behind fore limbs	1,260	1,155	780	850	790	740	625	565	450	425	445
Girth in front of hind limbs	475	480	280	380	365	295	245	225	197	195	166

Measurements (in millimeters) of two gray pups, taken at North Rookery, Bering Island, October 26, 1882.

	No. 1697, male, 38 pounds.	No. 1698, female, 30 pounds.
Tip of nose to end of tail	885	865
Tip of nose to fore flippers	425	375
Fore flippers	295	263
Hind legs	275	245
Tip of nose to eye	55	42
Tail	27	30
Girth behind fore flippers	630	570
Ear	38	35

VIRILITY OF BULLS.

While there is thus shown to be a certain instability in the rookery outlines and quite an uncertainty as to the various classes and stages of the seals, except in a general way, there is observable a similar lack of strict adherence to the habits as described by many writers, though these may upon the whole be correct. No doubt, for instance, many of the old bulls on the rookery, especially early in the season, stand up bravely without retreating, even against a number of men, but it is also true that a good many of them do not. Lest the more cowardly conduct of some bulls should be charged to an alleged lack of vitality in those of the present generation, I will only quote what I wrote immediately after my visit to the North Reef Rookery, Bering Island, on June 5, 1883:

Between 200 and 300 old bulls were scattered all over the ground, some sleeping, some fighting; others rose up, somewhat uneasy at our approach; others, again, galloped away as fast as their short feet would carry them, plunging headlong into the water. A few would make a bold stand for some moments and roar at us, but they soon turned, seeking to escape. None of those we approached very closely would keep their positions.

I may cite another instance from a date much later in the season, but yet at a time when the females required the full attention of the bulls and on a rookery where the latter were plentiful and vigorous. The observation was made in Sikatchinskaya Bay, Palata Rookery, Copper Island. Mr. Grebnitski had landed on a rock in the rookery to take a couple of photographs, while I, with the men, remained in the boat. The following is an abstract from my diary of August 3, 1895:

It was a sight never to be forgotten. The females from all around rushed into the water pell mell, while the old bulls were running to and fro trying to keep them back, though in some cases taking the panic themselves and following the example of the females, who made the water fairly boil around the boat by their jumping. On the nearest rocks hundreds of black pups were huddled together as close as they could stand, fearing to go into deep water; but, finally driven into it by the advance of the photographing party, they swam with the utmost ease. Of all the many seals covering the rocks around us when we first arrived, only two kept their places. These were an old bull and a matka in heat. Our boat was lying within 20 feet of them, yet they did not mind us, and the courting—the female did the courting—went on, although our presence evidently acted somewhat depressingly on the male, who anxiously kept an eye upon us, while yet unwilling to leave the female. Occasionally he screwed up enough courage to face us and roar defiantly, but as we approached to within 10 feet and I got up in the boat to fire my camera at him he suddenly thought that discretion is the better part of valor and plumped headlong into the water on the other side of the rock. He came out and up on the rock, however, a few minutes later and shook the water out of his fur, but the female had apparently become disgusted with him, for, in spite of our retreating, she went into the water shortly after he had returned to her. He then also left for good.

DO ALL BACHELORS HAUL OUT?

The general impression, as derived both from the printed reports and oral communications, seems to be that the vast majority, if not all, of the bachelors haul out on the beaches during the season. It would, of course, be impossible to say whether each individual bachelor does haul out at least once during the season, or whether some of them stay in the water throughout the entire year, but my observations lead me to believe that only a smaller portion of the whole body of bachelors haul out at any one time. That a good many of the seals in the water in the immediate neighborhood of the rookeries are bachelors, I know from personal observation, for the two sexes are more easily distinguished at a distance while in the water than on the rocks. These

probably all haul out at some time or another. But the question is, Does the bulk of the bachelors met with on the feeding grounds and far away from the rookeries during the breeding season also haul out? I am inclined to believe that they do not, for the following reason:

While it is true that the great rookery on Bering Island was never before "raked and scraped" for the last bachelor seal as it was during the past season, yet it is not denied that a similar difficulty in gathering the requisite number of killables has been going on for a couple of years, though not to the same extent. Now, if intelligent and honest persons at the close of the season of 1894 had been asked, while viewing that rookery, whether there were, say, 18,000 bachelor seals (outside the pups of that year) in sight or within a comparatively short distance, they would be obliged to answer no. The question then becomes pertinent: Whence, then, came the 9,000 bachelors killed in 1895 on that rookery (hardly any yearlings showed up at all) and the probable other 9,000 that perished during the winter by being killed by the pelagic sealers or otherwise? The bulk of these 18,000 must have stayed away from the immediate neighborhood of the island, and as bachelor seals are not known to haul out in great bodies very far from the breeding grounds there is every reason to conclude that they stayed at sea.

To fully weigh this answer it is necessary to remember that the bachelor seals, especially the younger classes, have no functions to perform on land during the breeding season. I do not believe that a single good reason can be advanced in defense of a proposition that the hauling out of the bachelor is of any advantage to the individual. Nor does it seem probable that all the bachelor seals are subject to a very pressing desire to go ashore until the sexual instinct is awakened. The hauling out on dry land by any immature seal is, therefore, only the result of the habit having been inherited. It is therefore likely to be of very varied intensity, and there is nothing intrinsically improbable in admitting that this habit in some, or even in many, is only awakened at the approach of sexual maturity. It must, furthermore, be borne in mind that the bachelor seals require an abundance of food no less than the females. The nursing of the young makes it imperative for the latter to visit the distant feeding grounds, but also to return regularly to the rookery. The bachelor seal, on the other hand, in contradistinction to the old fat bulls remaining the entire season on the rookery, needs a big food supply because he is growing; but different from the female, he has no individual business on the rookery. Of course, while there is no advantage to the individual bachelor in hauling out, there is an advantage to the species, inasmuch as it tends to strengthen the inherited habit which insures the return of the necessary number of breeding males at a later age to their respective rookeries, but this proposition does not involve any necessity for all to do so.

The above observations and reflections, which are chiefly submitted in order to emphasize that it is necessary to allow for a certain latitude in the habits of the seals, I am now going to follow up with a series of special observations upon certain phases of fur-seal life which I made during the investigations of last summer. They are in part corroborative of observations made by investigators in other localities, particularly the Pribilof Islands, while, in part, opposed to the opinions held by some other observers. In so far as this diversity of opinion affects certain theories only, my deductions will stand or fall upon their own logic; but where there is a disagreement as to the facts I beg to remind my readers that the facts, as here set forth, only relate to the conditions found on the Commander Islands and more particularly on Bering

Island. If the facts observed by me differ from those established by others, it does not necessarily follow that one of the two observations is erroneous. I will again recall the fact of the bachelors mixing among the females and the consequent driving of the latter on Bering Island in order to show there are differences between the conditions there and upon the Pribilof Islands.

FOOD OF SEALS AT THE ISLANDS AND EXCREMENTS ON THE ROOKERIES.

The question as to what animals furnish the bulk of the food of the fur seals can not be solved positively on the rookeries. My investigations last summer corroborated those of twelve and thirteen years ago and tally with those of others, viz, empty stomachs with a few stones in them, and occasionally a few beaks of cephalopods or very rarely the backbone of some unlucky fish. Since, however, as I have already pointed out, the bachelor seals on account of their growth must necessarily take a great deal of food during the summer, the above negative result does prove pretty positively that the seals on the Commander Islands must, *as a rule*, obtain their food so far from the islands that it is thoroughly digested before they return to the hauling grounds.

I emphasize again the "as a rule," because there are single observations to the contrary. Thus, I was informed on Bering Island that once on the South Rookery a flock of bachelors was so full of octopods that they vomited up quantities of these mollusks while being driven.

It is true the statement that the bachelor seals must necessarily feed because they are in a stage of continued growth is a purely theoretical one, and it has been seriously denied that they feed during the season to any much greater extent than the old bulls. In support of this contention is quoted the observation by the British Bering Sea commissioners (Rep. Brit. Comm., p. 42) as to the absence of excrementitious matter upon the rookeries. Though my observations, more particularly on the Commander Islands, do not agree with theirs, or Bryant's, I am not going to dispute their accuracy on that account, but I do maintain that their negative result does not prove anything, while my positive observations to the contrary do prove that the seals take nourishment throughout the season. And now for my facts.

Anyone examining the carcasses on the killing grounds immediately after the killing can not help observing that a good many of the dead seals at the moment they were slain had voided a greater or less quantity of ocher-yellow excrement of a creamy consistency. This observation I have not only made on the Commander Islands at every killing I have there witnessed (and the unpleasantness of handling the seals thus soiled has very vividly impressed my mind), but also on St. Paul Island during the only drive it was my privilege to follow there, viz, on June 26, 1895. Here is the entry relating to the latter observation:

> Mr. True afterwards opened a number of stomachs without finding any food in them, and I opened one, which had just voided a quantity of fluid excrement, with similar result. Quite a number of seals voided excrement of like nature.

On the 2d of August, 1895, Mr. Grebnitski and I landed and established our camp at Babinski Padjom, Gliuka Rookery, Copper Island, on the former hauling ground of the bachelors. A few half bulls only were located at the eastern end of the bay—all that was now left of this rookery. Here are the words of the diary:

> After supper I went over to the eastern end of the bay, where the polusikatchi above alluded to had been lying (for upon our settling down in their neighborhood

all of them sought safety in the sea). The entire narrow and steep beach which lines the precipitous cliffs (300 feet and more) forming the coast here consists of rounded stones of various sizes, from that of a marble to that of a man's head, but averaging, perhaps, that of a fist, and of a light-gray color. On this pearl-gray ground the station of each half bull was clearly marked with a brown stain, and all around patches of semifluid excrements were found in various stages of drying up and disintegration. The freshest excrements were of a blackish-brown color and of a very penetrating and disagreeable odor, while the dried ones were of a pale drab color. In spite of the humidity of the climate, things on the beaches dry up remarkable fast and thoroughly, but I suppose it is partly due to the perfect drainage of the sandy or pebbly beaches. * * * The fact is that the excrements contain comparatively few solids and are easily dissipated.

This observation is particularly conclusive because it showed at the well-defined station of each half bull (hauling up much after the fashion of the old bulls) a quantity of fecal matter in the various stages of disintegration, from that of the semifluid, nearly fresh excrement, to the dry and odorless "chip." Taken as late as August 2, yet a considerable time before the close of the season, it has a very important bearing upon the question.

The third and last entry in my diary in regard to this matter is dated August 22, and relates to what took place during the big drive on that date on the North Reef Rookery, Bering Island, which was witnessed by the officers, including the surgeon, Dr. Lloyd Thomas, of Her British Majesty's ship *Porpoise*. It reads as follows:

There was another matter to which I called the special attention of the English gentlemen while we were on the rookery, viz, the presence—and very offensively smelling presence—of semifluid excrements on the rocks, particularly mentioning the opposite observation of the British commissioners. In fact, the fecal matter was making it very slippery in places.

The argument derived from the alleged absence of excrementitious matter on the rookeries is consequently disposed of. It may be well to add the remark that it is more than probable that most of the feces are voided at sea before hauling up, and that, in conjunction with their fluid nature, this explanation accounts satisfactorily for the fact that its presence on the rookeries is not more obvious.

As already remarked above, observations on the rookeries are not apt to furnish positive data as to the nature of the bulk of the food of Commander Islands fur seals. That they eat cephalopods is proven by the occasional presence of the beaks in their stomachs, as well as by the above-quoted instance on the South Rookery. It is also possible that Mr. Grebnitski's suggestion is correct, that the presence of pebbles in the stomachs is largely to be accounted for by assuming that they are swallowed together with the octopods holding on to them. That they also eat fish, at least occasionally, is also unquestionable. But the following facts will as unquestionably show that salmon and cod, at least, do not furnish any portion of the regular summer diet of the Commander Islands seals worth mentioning:

It may not be very much to the point to observe that three species of salmon (*Oncorhynchus*) abound in all the rivers on Bering Island, and that the fur seals are not observed to feed upon them at the mouths of these rivers; but the fact that the largest salmon river of the island, the Saranna River, is situated less than 7 miles from the largest seal rookery without the seals coming over there to feed upon the enormous numbers of salmon ascending that river is proof conclusive. The river and the fishing establishment of the natives at Saranna have been described elsewhere in this report, so that it will suffice in the present connection to recall the statement that the annual catch in that river alone varies between 20,000 and 100,000 salmon.

As for the codfish, it is only necessary to state that they are common right off the great North Rookery of Bering Island. On September 16, 1895, we were anchored in 10 fathoms of water less than a mile from Sivutchi Kamen and within hearing of the roar from the rookery. A single cod line over the side of the steamer for a couple of hours brought up three-fourths of a barrel of codfish.

EFFECT OF DRIVING.

One of the questions to which I paid special attention during the past summer was that of the effect of driving upon the vitality of the seals. It has been variously asserted that the repeated driving of the male seals on the Pribilof Islands has resulted in the weakening of the procreative power of the bulls and the consequent degeneration and partial decrease in the number of seals on the rookeries. It has also been hinted that the difference in the methods of driving the seals on the Pribilofs and on the Commander Islands might account for the apparent lesser diminution of the seals on the latter islands. The question is therefore one of the utmost importance, and it was in order to specially make a direct comparison between the methods employed on the American and the Russian side that I asked to be enabled to land on St. Paul Island and witness a drive there before proceeding to the Commander Islands. It is therefore pertinent to submit a description of this drive, which, thanks to the assistance of the agents of the company and of the United States Treasury, I had an opportunity to follow on June 26, 1895.

It would, of course, be hazardous to base any far-reaching conclusions upon one single drive. As Mr. F. W. True was going to follow up similar studies on St. Paul Island during the whole of the following season, he kindly assented to accompany me on the present occasion, so that he might afterward inform me how the drive we were going to take part in might compare for severity with those which were to follow later, and which I myself would not be able to inspect.

At 9 p. m. on June 25, in company with Mr. Stanley-Brown, the general agent of the company, we started for Polavina Rookery in a buckboard drawn by a pair of strong mules. The road was to a great extent still covered with snow and water, compelling the driver to pick his way in the dark over hills and marshes. After a trying ride of two hours, during which it was a wonder that we were not upset and spilled by the roadside or into the water which surrounded us on all sides, we arrived safely at the hut, where we found a party of nine Aleuts who had preceded us. After a fitful slumber on the benches in front of the cooking stove, we turned out with our gang at 2 o'clock the next morning and proceeded to the hauling ground, where we could hardly discern the various objects in the hazy gray light of the early morning. I quote now from my diary, written a few hours later:

We move stealthily along the margin of the breeding ground, which is occupied by angrily bellowing bulls, a few—a very few—females, and still fewer pups, cutting off a small herd of bachelor seals that are skirting the inner edge of the breeding grounds. At the end of the latter we make a sudden spurt, Mr. True and I running at full speed with the Aleuts for the water's edge, thus cutting off another crowd of bachelors—I estimate in all about 1,000. Then the driving begins by dividing the herd in two (unintentionally) uneven sections, which are driven easily, without special urging, over very even ground.

The seals are of very unequal sizes, there being quite a number of large half-bulls in the flock. In driving, the various sizes become somewhat sorted, inasmuch as the younger and more agile seals keep well to the front, while the large and fat half-bulls bring up the rear. Occasionally a few of these are cut out and left behind—

probably in all about 50. No other cutting out or culling is undertaken while the driving is going on, and it is practically impossible as long as the seals are driven in as large flocks as these. On the other hand, the driving gang is too short handed to manage a large number of small sections, as on the Commander Islands. After a moderate drive overland for about three-quarters of an hour the seals enter a series of shallow lakes, and now the progress is rapid. At 5 a. m. the herd is halted just outside the salt house at Rocky Point, and the drive is over.

It is noticeable that the seals are nearly as fresh at the end of the drive as at the beginning. The younger seals are quite active. They walk about unconcernedly, and stand well up on their legs, while the big ones commence to fight each other immediately upon the halt being made. Only one single seal dropped voluntarily out of the line on the road, viz, a large and particularly fat half-bull that got tired very early.

The killing gang arrived from the village in two boats a little after 7 a. m. Six men with nicely finished oaken clubs did the killing while the others were skinning. Mr. True and I took the tally of each of the first ten "pods" of seals as they were separated off from the big herd to be killed. These "pods" consisted of from 15 to 40 seals, averaging about 25. Of these the killing gang clubbed to death those which appeared to come within the required size. The others, being either too large or too small, were allowed to escape to the beach close by. About 50 per cent were thus turned away, about one-half consisting of too small seals, the other half of too large ones. The killing was over at 10.30 a. m., about 500 skins having been secured. It is to be noted that no female was observed among the seals driven.

On the whole, the affair was conducted with care, although a certain hurry in order to get through as soon as possible was quite manifest. This haste, probably due to a desire to be back in the distant village before dinner, was responsible for the less deliberate way in which the "pods" to be killed were cut out from the main herd. This resulted in great worry and consequent heating of the remaining seals, which made it necessary to drive them repeatedly into the ice-cold waters of an adjacent pond in order to cool them off. This necessity was rather startling, in view of the chilliness of the atmosphere and the long rest enjoyed by the seals between the drive and the killing.

Apart from its length—about 2 miles—this drive must be characterized as very easy. An inspection of the ground over which the drives from some of the other rookeries must travel impressed me, however, with the fact that not all the seals on St. Paul Island are let off as easily. Mr. True also informs me that this impression is correct, and that the drive we witnessed in company was rather easier than the average.

I will now submit a description of a few characteristic drives observed by me on the Commander Islands. The first one (which took place during the palmy days of the business on these islands) occurred on July 13, 1883. A thousand seals were to be taken from the Pestshani hauling grounds (p. 49), Glinka, Copper Island, to finish up the catch of the season.

We started out at 4 o'clock in the morning from Glinka village. The weather was very disagreeable. A wet, gray fog concealed everything, preventing us from seeing 20 paces ahead. The thermometer indicated +43° F. The path, which in two places rises to over 800 feet above the sea, with a drop of 500 feet and another rise of nearly 200 feet between them, was slippery in the extreme, as the protracted rain had softened the clayey ground. After a very tiresome walk of nearly an hour we halted on top of the third hill, where we had a pretty good view of Pestshani hauling ground, as the fog had lifted somewhat by this time. The projecting point of the beach, so named, was densely covered by a black mass of bachelor seals, which here haul out by themselves in large numbers apart from the breeding ground. When the last of the gang of about 20 men had arrived the line of action was decided upon, the chief assigning to each man his duty, and the whole crowd ran or slid down the steep, grassy descent, about 700 feet in one continuous slope.

We approached the compact mass of bachelors rapidly. The nearest animals showed signs of uneasiness upon our coming within 50 feet of them. The chief then ordered "Go ahead," and we all made a rush to cut the big herd off from the sea. Those located near the water's edge were successfully intimidated along the whole line and prevented from seeking safety in the sea. They fell back upon those behind, thus effectually barring them, and soon the whole mass was surrounded and slowly moving away from the water until stopped by the precipitous walls of the coast escarpment. The flock thus secured consisted of about 2,000 bachelor seals of vari-

ous ages. As rigorous orders had been received not to accept skins under 8 pounds, the sorting would have to be very careful, hence the necessity of a large number to select from.

The whole regiment of seals was now divided into companies, which were driven slowly along the escarpment to the steps built of driftwood (see fig. *b*, pl. 58). These were ascended with but little difficulty. Altogether ten companies were formed, each driven by two men. A space of several hundred yards was allowed between each section.

The progress was slow, averaging less than a mile an hour. There was consequently good opportunity to sort out any undesirable seals. Thus a number of undersized youngsters were allowed to escape early in the drive. Before ascending the 700-foot slope mentioned above a halt was made. Soon, however, the climbing began. As may well be imagined, the ascent was very laborious. The angle of the slope was at least 35 to 40 degrees, and the smooth grass and slippery clay made it almost impossible to get a hold with the feet. The poor animals slid backward over and over again, and when they finally succeeded the ground was made smoother and more difficult for those to follow. Moaning, and blowing, and steaming, they press their smooth fore flippers hard on the elusive clay and drag the hind part of the body after, while the men beat the ground with their long staves in order to stimulate the animals to further effort. It happens rather frequently that a seal loses his balance, and after a series of bounding somersaults lands at the foot of the hill, accompanied by the laughter and merriment of the Aleuts. I expected every time to see it lie dead with broken back or neck, but every time the involuntary acrobat arose unhurt, looked around in a dazed manner, as if surprised at finding himself so suddenly alone, away from his comrades and tormentors, and scampered away as fast as possible toward the sea.

About halfway up the hill even the larger seals commenced to give out and refused to move farther, from sheer exhaustion. As it would not do to leave these behind, a knock with a club on the head finished their unhappy existence. In a minute, or a minute and a half, the skin had been ripped off from the quivering body and thrown into the knapsack which each man carried on his back. Having arrived at the top, the survivors were given a long rest. The remaining 2 miles of the march were easier, though the last ascent was hard enough on account of the tired condition of the animals. An hour of rest was given before the final killing, to allow the animals to cool off.

This drive can easily be traced on the map (pl. 13), as it followed the dotted line between the Pestshani hauling ground and Glinka village.

With slight modifications the above description applies to most of the drives on Copper Island during the days of plenty, though the present one was one of the hardest, as it was the longest. A shorter route was afterwards devised, as detailed under the description of the Glinka rookeries (p. 51). Of late years there has not always been enough animals to make it worth while to drive them from Palata over the 1,000-foot pass, and many of the small drives are killed not far from the beach, and the skins carried in knapsacks across the mountains to the salt houses on the other side of the island. At Karabelni the carcasses were even skinned right on the beach, not 1,200 yards from the breeding grounds, so that the waves carried them out to sea and occasionally threw them up again on the rookery among the living seals. However, even nowadays the seals are driven across the island every time their meat is wanted for food, or whenever the drive consists of so many seals that it is practically impossible for the people to carry all the skins on their backs, as testified by the 700 decaying corpses on the killing ground at Pestshani salt house, which I photographed on August 6, 1895 (pl. 58*c*).

To complete the picture of the driving on Copper Island, I may describe one of these small drives, the principal object of which was to obtain fresh meat for the natives. It is thus recorded in my diary for August 8, 1895 (pl. 58*a*):

The weather was just right for ducks and fur seals, and consequently we started out this morning at 6 a. m. in a drizzling rain. There was no help for it. The drive could not be postponed, and as I was going to photograph, rain or no rain, the cameras were taken along. The weather might possibly be better on the other side of the mountains, but it wasn't.

As indicated yesterday, all the rookeries had to be scraped in order to make even a small drive, and since I could only be in one place at a time, I selected to go with the party taking the drive at Zapadnie. Here altogether about 250 animals were finally gathered together, and the driving started in three divisions. This could easily be done, for there were certainly enough people to attend to each division, there being no less than 30 full-grown men and about half a dozen boys. What a difference from former days, when 2 men or boys were all that could be spared for divisions of about 200 seals each! Most of the animals were killable bachelors, a few females and undersized bachelors having been separated out, as the drive went on, before the steep ascent was reached. Thus far I have only with certainty discovered one female driven across the mountain.

The road was very wet and slippery, both from the long grass and the smooth clay which here forms the chief material covering the underlying rock, and the ascent was consequently a very laborious one. The middle part of it is very steep, and in one place steps have been cut in the ground so as to facilitate the climbing. The altitude of the pass forming the highest point on this drive is about 800′ [760 feet].

The seals soon commenced to give out, and the men then resorted to all sorts of goading them on, short of killing, in order to get as many of the seals as possible alive to the killing ground at the village, since they wanted the meat badly. Only when a seal could absolutely go no farther, after having been urged on by being poked and beaten with the sticks, only then it was killed and skinned. But not even then in all cases, for if it was a small and therefore particularly tender animal, it was grabbed by the hind legs and dragged along [pl. 62*a*] until some steep declivity was reached, down which it was then flung. Yet a good many had to be killed along the road. Little girls and still smaller boys arrived now with big skin bags on their backs [pl. 62*b*] to carry home the skins and choice parts of the meat. The last division, as well as about 100 seals from Palata Rookery, reached the level ground behind Glinka village at 10 a. m. and were given a rest there.

At 11 o'clock the final drive in four divisions was begun toward the killing ground near the beach (not 300 yards) west of the village. Down the steep embankment (fully 60 feet high) the numerous drives have worn a deep channel-like rut in the slippery clay, and down this chute the animals came rushing as if it were a toboggan slide [pl. 63*b*]. They slid down in bunches together, and became piled up at the bottom in big heaps. As they were now driven over the sand of the beach, a few undersized seals and a solitary matka or two were sorted out and allowed to escape into the water, but the final culling was done on the killing ground. Altogether 47 undersized animals were thus driven over the mountains and finally permitted to go back into the sea.

These young animals let loose on the sandy beach afforded great sport for the younger generation of future seal killers, if seals there be left when they grow up. Four little tots, 5 to 6 years old, with sticks in their hands, tried to drive into the water two young seals too tired to advance farther and asking nothing but to be allowed to lie down and rest. The seals resented the attack, and the four little fellows hit them over the head and the snouts with their sticks, as they had seen their parents do with the big ones, and finally succeeded in driving them into the sea.[1]

The above descriptions give a fair idea of drives on Copper Island as they were and as they are. They demonstrate the tremendous difficulties and the hardships on the seals. A glance at the maps of the Copper Island rookeries and a study of the descriptions I have given of them in another chapter must convince anybody that there is nothing even approaching them on the Pribilofs.

Not so on Bering Island. There the drives are short and easy on the seals. The killing ground is located scarcely more than 500 yards from the main rookery, and right in front of the summer village where the men live during the sealing season. The longest drive ever taken is only 1½ miles long; the road is over level ground, mostly covered with grass, and the ascent up the coast escarpment is easy and only 30 feet high.

[1] I am sorry to say that a good deal of unnecessary suffering was caused the animals simply for the fun of it. The people can hardly be blamed. They are certainly not particularly cruel by nature, but on the other hand they evidently have no idea of such a thing as cruelty to animals. They have grown up from babyhood among these scenes, and their feelings are naturally blunted. It must not be forgotten, however, that in the midst of our own civilization more cruelty to animals is practiced in a single day than in a whole season on the seal islands.

A grave feature of the Bering Island drives, however, consists in the mixing in of females and pups with the bachelors throughout the season. I have elsewhere in this report treated of this side in detail, but it may not be superfluous to give an account of one of the largest drives last summer on North Reef Rookery, Bering Island, which took place August 22.

It being necessary to wait for low water, we did not start until 7 o'clock a. m. The morning was raw (about +50° F.) and dark, a drizzling fog enveloping the scene and making successful snap-shot photography an impossibility. We proceeded, Indian file, to the rookery and in short order drove off nearly all the grown seals located on the reef itself, over 4,000 animals, all told. Most of these were females (about 3,000) and bachelors (about 1,000). As it was late in the season, only 8 bulls were caught. As many pups as possible were allowed to escape into the sea, and they availed themselves of the opportunity offered to go off in large flocks. Nevertheless, about 300 pups were driven off to the killing grounds before they could be released. The whole breeding ground not located on outlying rocks—and it was now low water—was gone over and swept absolutely clean. Not a living seal, except a few pups too weak from starvation to move, was left on the "Reef."

As usual, the seals were driven in squads of 200 to 300. The length of the drive was only 650 yards, and in the cold morning entailed no hardship on the seals. On the killing ground they were again collected into two large herds. The segregating of the "pods" to be killed was done very quietly and deliberately, without worrying the entire herd. Only about 190 grown males (too large and too small) were allowed to escape, or 20 per cent of all the males driven. Whatever injury the driving might inflict would consequently be trifling so far as the male element was concerned.

But how about the females? More than three times as many females were driven and returned to the sea as there were bachelors to be killed. How did it affect them? Did they suffer much physically? Does the driving of the females seem to have any influence upon their return to the rookery?

These and many related questions will find an answer in the notes and remarks which I wrote down on the spot during an earlier drive on the same rookery, viz, on July 19, 1895.

A separate tally of the number and kind of seals driven is submitted elsewhere (p. 110), and some of the following notes refer to the "pods" therein enumerated, by "pod" meaning each little flock of seals taken out of the big herd to be killed. Each pod usually consists of bachelors, females, bulls, and pups. The killing gang attempt to hit as many of the bachelors on the head with their clubs as possible, while the other classes are allowed to escape. Occasionally the club glances off and hits the wrong animal, or, more rarely, a mistake is made in the identification of the animal clubbed. The following remarks are transcribed from the diary without any attempt at classification:

Female seals were accidentally hurt, more or less severely, during the killing. I noted the more severe cases as follows:

In pod 4, 1 stunned; soon recovered and scampered off.

In pod 18, 1 so severely stunned that a man carried her off by the hind legs; recovered in fifteen minutes.

In pod 25 the most severe case occurred. She was perfectly unconscious for a long while; finally sat up, but could not be induced to move. At 2 p. m. I found her still in the same place in a dazed condition.

In pod 31 a female was also badly hurt and bleeding, but not so severely as one in pod 35, which received a very big scalp wound. Both ran away with the others, however.

In pod 7 a yearling was so badly hurt that it was thought best to kill him.

In pod 28 a pup was hurt, but I don't believe it was done by clubbing; it was probably injured in the crush. At 2 p. m. I found it still unconscious in the place where it first fell, but as I roused it by lifting it up by the hind flippers it came to and in a little while ambled off.

Returning to the killing grounds at 7 p. m., I found there a lonely pup roaming about aimlessly. As I saw the other pups escape with and follow the various pods of females, I am inclined to believe that this was the same pup which was hurt and which I was speaking of above. If so, it was very lively now and made a furious resistance when Abraham Badaef made an attempt to grab it by the hind legs. This he had to be very careful about, for the bite of even such a little fellow—probably not so very many weeks old—might be serious enough; but he finally succeeded and carried the pup off to the beach, where it was left to take care of itself.

I watched the handling of the seals very carefully in order to ascertain the amount of injury they might receive during the affair. The natives were certainly not very particular, much less so than those on St. Paul Island when Mr. True, Mr. Stanley-Brown, and the Treasury agent were observing them, but I can not say that I was much impressed with the severity of the hurt that could have been inflicted. The animals are as soft and pliable as cats, and while there is a good deal of excitement, even panic, and the wildest possible scramble one over the other, none of them seemed to mind it in the least. The whole mass of more than a dozen females would occasionally be piled up on top of a little mite of a pup, but he would immediately pick himself up upon being released and plunge into the seething mass with renewed vigor. The scramble was very suggestive of a game of football, and I feel certain that the seals were less injured externally and internally than the average football player; and as for the exertion, excitement, and fright of the drive having any influence upon the procreative powers of the bulls, as well might it be asserted that the football players impair their virility and render themselves impotent by playing the game.

Many incidents might be quoted to show how little the seals mind the drive and how soon they forget its hardships. On Bering Island I have repeatedly observed half-bulls in a drive trying to mount females in heat during intervals of rest. Another observation is so highly interesting in many ways that I quote it from my diary of July 15, 1895, North Rookery, Bering Island, as follows:

This evening I made a very suggestive observation. While working along the escarpment just west of the salt house, I came across a small flock of seals left over from yesterday's drive. They had not returned to the sea, but had located on the very extreme northern point of the escarpment, a considerable distance from the rookery (about 250 yards) and 30 feet above the sea. I was quite surprised at finding the flock to be a "harem" consisting of 1 bull and about 20 females. I could not count their number exactly, as I did not want to disturb them, but there were about 20 females, and I heard at least 1 pup, though I did not see it. I took up my position some distance off and watched them. Several of the females were in heat and were alternately teasing the bull, getting him by the throat, but he was kept too busy running around trying to keep the harem together, as some of the females were evidently anxious to return to the rookery. He, on the other hand, was plainly well satisfied with the location and intended to hold it. * * * Now, these animals were driven yesterday and not let go until after they had reached the killing grounds (only 220 yards away from their present location). In view of the above observation, it seems absurd to assume that the driving had injured them in the least. Nor can this bull be accused of sleepiness—yet bulls are few on the rookery—for he was kept very busy indeed.

His vigilance did him no good, however, for the females escaped to the rookery during the night, and the place was entirely deserted when I visited it next morning.

It is certainly very significant that on Bering Island over a thousand pups are yearly driven to the killing ground, there to be released, without any visible harm coming to them worth mentioning. If these newly born seals can stand to be driven three-fourths of a mile from Kishotchnaya and to be repeatedly trampled upon by the larger ones piling up four high, or more, on top of them, it stands to reason that the vigorous holustiaki—or even the females—as a whole can suffer but little injury from the same cause.

Before leaving this subject it may be well to recall the following points:

On Bering Island the drives are easy, while on Copper Island they are exceedingly severe. Yet on Copper Island the bulls and half-bulls are plentiful, while on Bering Island they are comparatively scarce. The severity of the driving, therefore, does not seem to bear any relation to the relative plenty or scarcity of mature bulls on the rookeries.

Again, on Bering Island breeding females and pups are always mixed with the bachelors in the drives. This, on the other hand, does but seldom happen on Copper Island, even nowadays. Yet the female seals on Bering Island are proportionately more numerous and do not appear to be less vigorous or less prolific than on Copper Island. Moreover, the productivity of the Copper Island rookeries has evidently suffered more of late years than those of Bering Island. The driving, therefore, does not seem to be responsible for the depletion of the rookeries.

DOES THE FEMALE SEAL NURSE HER OWN PUP ONLY?

The question whether the mother seal nurses her own pup only, or whether she will allow other pups to suck her promiscuously, has been causing quite a controversy. To persons who have not studied the question on the rookeries with the closest attention it seems an absurdity to suppose that a female seal, after an absence of a day or more, during which her pup has been mingling with the thousands of other pups and roaming all over the rookery with them, should be able to find it and recognize it. During my visit to the islands in 1882–83 the question was not up, and I had paid no special attention to it. On thinking of the multitudes of pups which I had seen podded together in those days I was, therefore, on theoretical grounds, strongly inclined to side with those who deny that such a search and recognition takes place, and I so expressed myself to Mr. True when we talked this matter over on our way to the Pribilof Islands. I resolved, however, to pay special attention to this question. The great difficulty lies in the impracticability of so singling out a number of mothers with their young and so marking them that they could be individually recognizable at a distance and for several days at least. Only in this way would it be possible to gather proof conclusive to others than the observer himself, particularly to persons who might not be willing to accept his other observations as final.

My observations on the rookeries, however, have been sufficient to convince me that I was wrong in doubting the ability of the mother to find and recognize her individual offspring among thousands of pups of identically the same appearance. Some of these observations noted down in my diary follow here in the very words written down on the spot.

Kishotchnoye Rookery, Bering Island, July 16, 1895.—Old bulls are certainly scarce, and of holustiaki I have thus far seen none. Pups are very plentiful, and the females do not appear to have been barren when they arrived. The pups are already "podding," and the two backward extensions on either side of the "parade" consist chiefly of pups.

The matki come and go, especially those that are wet and apparently just in from the sea, while the dry ones [meaning those with the fur dried from having been longer ashore] lie still, sunning and fanning themselves.

Right in front of me, about 200 feet away, is a small group of 6 dry matki and close to them a pod of about 50 pups. About 20 feet to the left is a lonely sikatch; then another similar group of dried matki and pups. The dry mothers are silent and lie down sleepily; the bull has not changed his position, his nose sticking right up into the air, during the last hour; he probably sleeps. Occasionally a wet matka [i. e., with wet fur] comes ambling up from the sea, and fighting her way through

the harems next to the water's edge finally reaches this group, which is located at the posterior left-hand horn of the breeding ground—the very edge of the rookery. Such a matka will stop occasionally, shake her head and bleat (apparently in anger): a few pups will rush at her; she noses them; finally shows her teeth, bleats, shakes her head, and ambles away to repeat the performance at the next pod. A matka with only a large wet spot on the hind quarters [she had consequently been a considerable time out of the water] came up in this fashion to this pod, and after nosing about in the midst of it finally grabbed a pup by the skin of its neck, much to the disgust of the pup, apparently, and carried the little one off, part of the way holding it in her mouth, part of the way pushing it ahead between her fore flippers. In this manner she brought it through several pods of pups and groups of females down to an old sikatch, a distance of fully 150 feet, where she lies down, but I can not see whether she is nursing the pup, as she is down in a hollow. I see, however, that the pup tries to escape—probably wants to go back to play—but is brought back every time.

Some of these wet matki will stop several minutes in front of four or five pups and nose them repeatedly, as if in doubt, before they go away. * * *

There is a remarkable individual variation in the voice of the females.

At 1 o'clock p. m., I moved to the northern end of the rookery. Among the notes written down there I find the following:

The pups were very active, running to and fro, but I could not discover that any of them went very far away from where I saw them first. On the other hand, females hauling out of the water were constantly traveling all over the rookery, calling and bleating.

Later in the season similar observations were made on the little South Rookery, Bering Island (August 17, 1895). The notes then written down also contain some reflections of a general nature upon the question. It is hardly necessary to add that upon further reflection I still adhere to the opinion then expressed—an opinion which may possibly have some weight, written as it was in plain view of the seals it refers to. That part of my diary reads as follows:

I was able to get very close to the grounds, which were occupied by mothers and pups only. A good many of the latter were in the water, but there was also quite a large pod of smaller pups at the posterior edge of the herd [near the place where I was watching]. I was again impressed, as before on Kishotchnaya, by the action of the females and pups when the former haul up from the water and go in search of the young to nurse it. The ground is here so small that it is a comparatively easy task for the mother to find its young, and I consequently observed several dripping-wet cows nursing pups. The mother in coming out of the water made straight for the pod of pups and the usual performance of pups rushing up and, upon being nosed at critically, refused, whereupon her search continued, was gone through.

So much is absolutely certain, that the females do not nurse the pups promiscuously. I am thoroughly convinced by what I have seen that the mother wanders considerable distances and spends much time in searching for her own individual child. Whether a mother who had searched in vain for a long time, and whose milk was pressing her very strongly, might not finally give in to the importunities of a particularly hungry pup is a question which it will probably never be possible to answer definitely, but I think such cases [if they occur] are the exceptions; the rule is certainly the reverse.

To the above I need add but little by way of argument. Persons who reject it on purely theoretical grounds have adduced much testimony to show how some other animals do not discriminate between their own young and those of other mothers, but anyone who has studied the habits of wild animals will know how utterly futile such an argument is, and how absurd it is to conclude from one species what are the habits of another.

I may finally, however, call attention to the fact that the opinion here held has of late received strong confirmation. I refer to the thousands of starving pups of late years found on the rookeries; for if the females were willing to nurse the pups of other mothers as well as their own there would seem to be no reason at all why any pups should starve to death.

MORTALITY OF PUPS.

The above reflection leads me to the question of the mortality of pups on the rookeries. With the reports of the appalling loss of pups on the Pribilof Islands fresh in my mind, one of the first inquiries I made on Bering Island, upon my arrival, naturally was whether any unusual mortality had been observed there.

The answer came from an authoritative source that—

No abnormal mortality had been observed among the pups on the Commander Islands. A few are killed on the rookeries by the old bulls stepping on them, or otherwise, and others are caught in the breakers and surf and are thrown on the beaches. The skins of these are all utilized and their number on each island averages about 200 a year.

This was also the opinion of everybody I spoke with.

On August 1 and 2, 1895, Mr. Grebnitski and I visited the Karabelnoye Rookery, on Copper Island, i. e., the eastern end of it, particularly the beach near the "Stolp" and the first breeding ground. On the 1st of August we found "two dead pups, one with the placental cord still attached, but too much decomposed to make an examination of the cause of death possible."

The next day we visited the same place again:

A few more dead pups were seen on the rookery this morning, all decomposed. They are easily accounted for, and the native was undoubtedly correct who stated that he had observed that the great number of sikatchi [remember, there were plenty of bulls on the Copper Island rookeries] caused so much fighting among them that many pups which came in their way got trampled upon and killed. The number, however, is plainly insignificant.

On August 22, 1895, in company with the captain, Mr. Francis R. Pelly, and several of the officers of H. B. M. S. *Porpoise*, I attended a large drive on the North Reef Rookery, Bering Island, the same of which I have given a description previously in this report. In order to fully appreciate the account which is to follow, it is necessary to remember that this great rookery covers a long rocky reef and that low tide (the difference between high and low water being about 4½ feet) uncovers a long stretch of rocky beach which forms the favorite roaming and playing ground for the pups. (Compare photographs 19*b* with 22*b*.) It should also be borne in mind that, as I have stated previously, it was extreme low water at the time we went with the natives on the rookery to take the drive.

When all the animals had been driven off, I remained behind to investigate. On the rookery ground I was startled by the great number of dead pups. I was wholly unprepared for this, because at the great distance from which it had become necessary to watch the rookeries here the small bodies of the dead seals have not been noticeable; in fact, I do not see how in the binocle they could have been distinguished from sleeping ones.

Those lying in a windrow along the high-water margin of the rookery were most conspicuous. These had evidently been washed ashore. A good many of them were in an advanced stage of putrefaction—some entirely flattened out and without hair. But an equal proportion had evidently died more recently, being in good condition. There was another class of pup carcasses, viz, those which were lying dead upon the higher portion of the breeding ground, away back from the water's edge. These were mostly all in good condition and appeared as if they had died within a few days.

When the seals were driven off, as many pups as possible were allowed

to escape into the sea, and they availed themselves of the opportunity offered to go off, in large flocks. But there was a considerable number of pups staying behind singly, which upon our approach made but feeble attempts in getting away. Evidently something was the matter with them. Upon a closer examination they were found to be very weak, and their thin, pinched appearance was at once noticeable. They were starving; their shoulder blades and ribs and hips were sticking out in strong contrast to the rounded and plump forms of those scampering off with the others. Upon handling the carcasses, both in the windrow and on the higher ground, the same state of affairs was apparent, viz, extreme leanness and emaciation.

After the rookery had been completely cleared I took my notebook and walking along the beach (starting at the south end, west side) began to count the number of dead pups, making a distinction between those in good condition and those in an advanced stage of decay. I had gone about halfway round and counted about 200 of the former class and 150 of the latter, when the starshena arrived and said he had orders from the kossak, Selivanof, to ask me to leave the rookery at once.

It was evident later that Selivanof was uneasy because he thought that the number of dead pups might in some way become charged against the management, for he tried to make the whole thing a small affair and explained to me that the number of dead pups was due to their being trampled upon by the sikatchi. But for three very good reasons this theory does not hold: (1) There are now very few sikatchi on the rookery at all, entirely too few to be able by any possibility to even kill a small fraction of the pups which have recently died; (2) if this trampling caused the death of so many pups, how many might we not expect in a drive like the one to-day, in which hundreds were trampled upon, not once, but over and over again, yet not a single dead pup was found in the wake of the drive; (3) this explanation does not account for the emaciated condition of the bodies of the dead ones.

Seeing the necessity of complying with the order to leave the rookery, I could not finish my count. I am pretty positive, however, that the following estimate is not much out of the way. I may preface it by saying that the number of dead bodies on the east side appeared to be about double that on the west side:

Dead pups on west side, counted, about	350
Dead pups on east side, estimated, about	700
Dead pups on high ground, estimated, about	200
Total	1,250

In leaving the rookery I took from the high ground two bodies, which seemed quite fresh, and from which, therefore, it would seem possible to determine the cause of death. In lifting the second body up by the hind flippers I was somewhat startled to find it still gasping, though it was much too weak to give any signs of life when lying on the ground. I carried it up to the killing ground, where the rest of the company had congregated, but the pup had died before I reached them. The other pup had died apparently during the previous night.

The doctor on board the *Porpoise*, Surgeon Lloyd Thomas, kindly consented to attend the post-mortem. On viewing the opened bodies he agreed with me that death was due to inanition—lack of food. They were starved to death. There was not a trace of fat left in the tissues under the skin nor on the muscles. The extreme leanness of the carcasses was very noticeable. Both of us afterwards commented upon the plumpness of the average pups as they appeared in the drive.

I satisfied myself while on the rookery that the fresh bodies in the windrow were in the same condition, and the fact that they were thus thrown up on the beach by the sea signifies nothing, for we had had no severe weather as yet, and it is therefore impossible that these pups could have been killed by any "surf nip."

It may be well to remark right here that the fact that these bodies were found in a windrow at high-water mark does not imply that they died in the water or were killed by the sea. I have explained above that at low water a long stretch of beach is bared, upon which the pups roam about and play. Naturally, a good many of the starving pups died there at ebb tide and their emaciated bodies were thrown up by the rising tide. It may even be reasonably supposed that these hungry pups would attempt to keep as close as possible to the water's edge, to beg nourishment of the females landing.

On the 16th of September I had another chance to inspect the North Rookery. My experience was as follows:

Very few seals were seen on the rookery, only a few thousands all told; the "sands" were almost entirely deserted, nor were any seals to be observed in the sea. Those on the reef were cows and pups, the majority of the latter now gray. One or two old bulls were seen and half a dozen large 4 or 5 year olds mingling among the females, apparently playing sikatchi. I found a great number of dead pups. There were at least twice as many as on August 22. All, or nearly all, were lying in windrows. Curiously enough, there were no very fresh bodies which might have been killed by the recent northerly swell. All I saw were dead at least one week. It was also notable that nearly all were black, only here and there a gray one.

After all, the absence of fresh bodies does not signify much. I have no doubt that most of them were eaten or carried off by the blue foxes. Since the decrease in the number of seals killed the natives on Bering Island have utilized every seal carcass, salting the best parts for their own use and putting the rest, including the entrails, into holes in the ground for winter food for the sledge dogs. The foxes in the neighborhood of the rookery, instead of feasting on the carcasses on the killing grounds and elsewhere, are therefore reduced to making a precarious living out of what they can snatch from the rookery. There being now only a few old seals on land, the foxes and their young, at this time nearly full grown, naturally clean the ground very early every morning of every pup dead during the night. The flock of large sea gulls (*Larus glaucescens*), always present on the rookery, also dispose of many bodies. It is therefore perfectly safe to assert that a great many more seal pups have died than any census based on the dead bodies present on the rookeries will account for.

It may be observed in the present connection that the bodies of even grown seals disintegrate and disappear with amazing rapidity. The combined efforts of the foxes, the birds, the staphylinid insects, and the fly larvæ reduce a carcass in very short order to a skeleton. During the winter the bones become scattered. If they are lying on or near the beach the furious winter surf sweeps them away; if they are farther away the decaying rank vegetation covers them up. During the winter the waves wash over the entire "reef" and the "sands" as well, and not a trace of the starved pup carcasses will be found on the beaches the next season.

It is a curious fact that the natives and the kossak in charge of the rookery were trying to make light of this state of affairs, although the very fact that the latter prevented me from finishing the count is evidence enough that he was aware of it. As mentioned in the abstract from my diary, he suspected that the great mortality might be charged against management. I have shown that his argument that the pups

were being trampled to death on the rookery has no foundation in fact, but I did not mention, however, his answer to my question why he thought so. It was to the effect that the flattened condition of the dead pups showed that they had been trampled upon. Now, it is quite true that these half-decomposed bodies present a very much flattened appearance, but that is not surprising when we consider the amount of cartilage in their skeletons. Moreover, there is no doubt that they have been trampled upon, but that took place after they were dead. After I had demonstrated to Selivanof and some of the natives that the pups had died from starvation and not from any injuries received, there was evidently a load taken off their hearts, and lamentations over the great number of dead pups were heard all around. I mention this incident chiefly to show how little dependence can be placed upon the observations made by the natives, and more particularly upon their deductions, or the explanations they see fit to make.

From the above it may be regarded as well established that during the past season an unusual mortality took place among the seal pups on Bering Island, and that they died of starvation. There seems but one reasonable explanation of this phenomenon, viz, that they starved because their mothers were killed, and as they were not killed on the island there seems to be no other logical conclusion but to assume that they were killed by the pelagic sealers.

ALLEGED CHANGES OF HABITS.

During the recent discussions relative to the habits of the fur seals and to the seal fisheries it has been asserted by various persons that the habits of the seals have undergone, or are undergoing, material changes. Curiously enough, such changes have been alleged by both sides, but while one side attributes certain alleged changes to the disturbance of the seals on the rookeries, the other side insists that certain other alleged changes are due to the interference of the pelagic sealers.

It must not be forgotten that the habits of the fur seals at the present time are the result of a long evolution, which dates back possibly millions of years. The habits of the North Pacific and South Pacific seals in most essential points are alike, and as these seals belong to very distinct species it is practically certain that these habits were formed before these species had emerged from the common ancestral stock. This separation probably dates back to the time when the North Pacific seals became geographically shut off from intermingling with the southern forms. From that early period the differentiation of the local habits of the former must have gone on for ages, until now there is inborn in every seal an instinct which is the inherited accumulation of the doings of tens of thousands of generations repeated every year.

It must, moreover, be borne in mind that the fur seals are gregarious animals. Such animals always act in flocks; their habits are the habits of the flock. Individual deviation from the habits inborn does not materially affect the habits of the whole community. To effect a change in the habits of such a species it would be necessary not only that the bulk of each yearly class should change their habits in the same way, but also that the causes should continue long enough to allow the change to be transmitted to the offspring through an unknown number of generations. This is particularly true where, as in the present case, the disturbing causes mainly affect the male sex.

The first detailed description of the habits of the northern fur seal, after Steller's account, is, as I have shown, by Veniaminof in 1839.

The next by Bryant (1870) and Elliott (1874). No change of habits is alleged up to that time. In fact, these changes are supposed to have taken place during the last five to ten years.

The theoretical considerations presented above have not been submitted with any intention of overriding by a priori reasoning any statement of alleged facts, though it is believed that its soundness is unassailable. It is only my intention to show the utter improbability of any change of habits within the short period in which man has interfered with the fur seal in order to demand strong proof in support of the alleged changes. In view of that improbability, we can not accept a change of habit as the explanation of certain phenomena unless demonstrated beyond peradventure, or no other reasonable explanation can be furnished. Much less can we be expected to admit such changes simply upon hearsay evidence or speculations of a general nature.

Now, for the alleged changes in so far as they have had reference to the habits of the Commander Islands seals.

The decrease in the number of killable seals on the rookeries has been attributed to their having been driven off to seek other haunts. It is alleged that they are staying at sea and that they are forming rookeries on the Kamchatkan Coast.

The evidence in support of these contentions are of the most indefinite kind. On a couple of occasions fur seals are believed to have hauled out at certain uninhabited rocks on the eastern coast of Kamchatka. In the first place, the accounts are so devoid of details that it is impossible to attach much importance to them. In the second place, granting that fur seals do haul up there occasionally, what scintilla of proof is there that they have not done so always?[1] As a matter of fact, I heard these rumors of fur seals hauling out on the coast of Kamchatka during my first visit, in 1882–83, and I know positively that Captain Sandman contemplated a trip to go in search of the alleged rookeries as far north as the island Karaginski. Nearly the whole eastern coast of Kamchatka, for a distance of more than 400 miles, is almost entirely uninhabited and very seldom visited by man.

The other evidence offered is the fact that lately the sealing schooners have been found taking fur seals during the summer months off certain capes in Kamchatka, notably Cape Shipunski. Here the same objection obtains. What proof is there that seals might not always have been taken there in summer? Moreover, is it certain that the seals taken there by the schooners represent the bulk of the "killables" of the islands? On the contrary, it is probable that these locations of schooners indicate the feeding grounds of the females, as hinted at in another chapter of this report. Krashenninikof's statement that "none of them are to be seen [on the east coast of Kamchatka] from the beginning of June to the end of August," only relates to the immediate coast itself and not to the open sea, where pelagic sealers make their catches.

The explanations offered of these alleged, but utterly unproven, changes of habits are diametrically opposed to each other. Those postulating that the regulated driving and killing of the bachelor seals on shore is causing the decrease of seals on the islands explain that this interference with the seals has led them to seek other haunts—in this case the coast of Kamchatka. There was never any evidence that seals were driven away from any place frequented by them habitually and took up their abode habitually in some other place. Elliott (Monogr.

[1] They apparently did so occasionally more than one hundred and fifty years ago, if Krashenninikof's statement, that "they seldom come ashore about Kamchatka," means anything.

Pribyl., 1882, p. 109, footnote), it is true, in speaking of the "rapacious hunters" that were drawn to the Commander Islands, states as follows:

> They appear, as near as I can arrive at truths, from the scanty record, * * * to have killed many and harassed the other fur seals entirely away from the island; so that there was an interregnum between 1760 and 1786, during which time the Russian promyshleniks took no fur seals, and were utterly at loss to know whither these creatures had fled from the islands of Bering and Cooper. When they (the seals) began to revisit their haunts on the Commander Islands, I can find no specific date. * * * I think, therefore, that when the fur seals on the Commander Islands became so ruthlessly hunted and harassed, shortly after Steller's observations in 1742, then they soon repaired, or rather most of the survivors did, to the shelter and isolation of the Pribilof group, which was wholly unknown to man.

As will be shown in the historical part of this report (p. 90), the seals, as a matter of fact, never fled from the islands of Bering and Copper, and Elliott's statement rests on a misapprehension. In the very year 1786, when Pribilof first discovered the islands which now bear his name, there returned to Kamchatka two vessels, loaded with fur-seal skins which could only have been taken on the Commander Islands, viz, one belonging to Protassof, "the cargo consisting chiefly of fur seals," and one belonging to Shelikof, with no less than 18,000 seal skins. Pribilof, with his cargo of over 31,000 seals from the new islands, did not return until several years later.

The other explanation, offered by some of those who ascribe the decrease of the seals on the rookeries to the interference by the sealing at sea, rests on an assumption that the sealers, by stationing themselves at intervals across the path of the seals on their northward migration, actually cut the seals off from the islands, thus forcing them to go elsewhere, or in the case of those finally reaching the islands, materially delaying them on the way. It would seem that to anyone who has seen the way in which seals travel during their migrations it would be plain that it would be impossible for many times the number of sealing schooners now in existence to effectually block the progress of the migrating herds. It may well be that the positions of the schooners if platted on the charts would show them to thus stretch across the path of the seals (it has been so asserted in Russian reports), and the large marks on the chart may well convey such an impression, but at sea the thing is quite different.[1]

This last explanation hints at the other alleged change in the habits of the seal, viz, an increasing lateness in the arrival of the bulk of the seals and a corresponding lateness in many of the phenomena of seal life on the islands. It is utterly inconceivable, however, that the sealers can even delay the bulk of the migrating herds materially, and the explanation, therefore, would not explain, even if the allegations of the increasing lateness of the phenomena alluded to could be substantiated, and in my opinion they can not.

A glance at the table of seals killed on North Rookery, Bering Island, during the season of 1895 shows that nearly one-third of the total number of skins was obtained between the 22d of August and the 13th of September (the skins being shipped September 16); in other words, during 1895 nearly one-third of the skins was taken after the

[1] For the contemplation of those who believe in the schooners being able to cordon the sea so as to actually intercept the seals, I submit the following: In the latter part of July, 1892, to the end of August, numerous schooners killed seals south of Copper Island. If the position of the daily catches of eight of them be platted down on a chart, it will be seen that they covered pretty evenly an area of 13,000 square nautical miles (roughly speaking). As their combined catch amounted to about 4,000 skins, it is plain that they secured about one seal on every 3 square miles (see map, pl. 1).

time when the skins are usually shipped. Thus, in 1894 the skins were shipped August 27; in 1893, August 22; in 1892, August 24. The earlier records to which I have had access are rather incomplete, but from 1877 to 1882 the seal skins were shipped from the North Rookery, Bering Island, on the following dates:

1877	Aug. 26	1880	Aug. 20
1878	Aug. 16	1881	Aug. 13
1879	Aug. 29	1882	Aug. 16

It will be seen that even in the palmiest days of the rookeries, long before the advent of the pelagic sealers, the shipping dates do not differ materially from those of the years 1892 to 1894. The lateness of the catch in 1895 is therefore abrupt and exceptional. There is a great deal of difference in the dates upon which the hunting ceases, even in former years. Thus, on Glinka, Copper Island, the catch was all in on the following dates:

1877	June 30	1880	Aug. 7
1878	July 12	1881	July 30
1879	Aug. 1	1883	July 13

But the lateness of the Bering Island season of 1895 is not explainable in that way either, for no amount of backwardness of the season would account for the catch after the middle of August. The summer of 1895 was certainly a cold and late one, and the snow was in places lying down to the water's edge the entire summer; but the season of 1879 was also late, according to the records, and the "year remarkable for much snow," yet the sealing season closed on both islands on August 2. There must consequently be some other reason for the lateness in 1895.

Here is where the plea comes in that the killable seals in 1895 arrived later on the rookeries than in former years. In answer to this I would like to ask the question: Is there anybody familiar with the North Rookery, Bering Island, who would deny that it would have been feasible in any previous year to have obtained there 2,670 skins between August 13 and September 13, if an attempt had been made to "scrape and rake" the rookery to the same extent as in 1895? However, the table of the seals killed on that rookery in 1895 directly disproves the alleged late arrival of the killables, for it will be seen that the proportion of the killables to the other classes of seals driven was decreasing toward the latter part of the season instead of increasing. Thus, before August 12 the average proportion of killed seals to those escaping was as 1 to 2.2, while after that date it fell to 1 to 3.75.

The following table shows how exceedingly variable the first arrival of killables on the rookeries really is:

First drives on Bering Island, North Rookery.

Date.	Number of skins.	Date.	Number of skins.
1877, June 29	911	1890, May 25	41
1878, June 3	3	1891, May 29	51
1881, May 31	221	1892, June 1	3
1882, June 8	512	1893, June 24	830
1883, June 19	1,552	1895, June 13	110
1889, June 19	1,103		

The true and only explanation of the exceptional lateness of the season on Bering Island lies in the fact that killable seals, especially the younger classes, had become very scarce, and that, consequently,

in order to get as many skins as possible—the company and the natives being equally eager to make up the threatened deficiency—seals were killed until the advanced staginess of the skins put a stop to it, as proven by the fact that in the last drive, in which 194 seals were killed, 51 were more or less stagey.

This statement recalls the other change alleged to have taken place. It is asserted that the skins become stagey later in the year now than formerly.

In order to fully weigh this allegation it is well to call to mind the fact that there are very few detailed and definite observations upon this point so far as the Commander Islands are concerned. Nowhere do we find any series of observations concerning this question continued through a number of years. It can not be too often emphasized that there is a great latitude of date in the events of seal life,[1] and assuredly the beginning of the stagey condition of the skin is no more bound to a rigid observation of the calendar than the other phenomena. Moreover, we do not at all know the causes which are responsible for these fluctuations; we do not know the conditions which accelerate the advent of the stagey season or postpone it. Possibly cold and damp weather may retard it. In that case we might expect the skins to become stagey somewhat later in 1895. The only definite record, so far as the Commander Islands are concerned, that I am aware of is the statement by the British Bering Sea Commission (Rep. Bering Sea Comm., 1893, p. 50) that "In 1891 we found the 'stagey' season was just beginning on the Commander Islands on the 1st of September." In 1895 there were 14 stagey skins taken in the drive on September 10. The "beginning" must, therefore, have been somewhat earlier—enough to show that in this respect 1895 is not extravagantly late.

The lack of reliable information concerning the beginning of the stagey season in earlier years is easily explainable by the fact that the killing season was over long before there was any suspicion of staginess. The question then was not at all "When does the stagey season begin?" but, on the contrary, "When does it end?" The reason of this was that the natives were anxious to begin the autumnal catch as early as possible, in order to get fresh meat, which they had been obliged to be without since the end of the killing season. Thus I find in the records of Bering Island station for 1878 that on October 13 it was contemplated to take a drive in order to get fresh meat. The "chief wished first to ascertain how skins looked at present, supposing they were too stagey yet," and accordingly went himself to the rookery, whence on the 16th he returned with 9 skins, reporting that "fur was good." The drive was therefore made and 520 seals taken on October 18.[2]

The explanation of the fact that nowadays many phenomena appear to happen later is easy enough. During the years of plenty very little

[1] The first arrivals on Bering Island rookeries are shown in the following statement:

Date.	Rookery.	Arrivals.	Date.	Rookery.	Arrivals.
1879, May 5	North	2 bulls. 1 bachelor.	1882, April 19	North	4 bulls.
1880, April 27	do	3 bulls.	1883, May 23	South	2 bulls.
1881, May 20	do	2 bulls.	1895, May 10	North	1 bull.

[2] The difference from the Pribilof Islands will be noted, as in the latter the natives were allowed to take seals for food in the stagey season. (See, for instance, Fur Seal Arb., v, pp. 714, 715.)

attention was paid to them except in the most general way. Such a thing as detailed observations and records throughout the season for a number of years sufficient to furnish exact data for reliable deductions were (and, as a rule, are yet) unknown. This is particularly true of phenomena happening after the finishing of the catch. But now, in the days of threatened commercial extinction, when the rookeries and the seals are under constant and anxious inspection, many things appear unusual and new. The killing season being extended in order to fill the required complement of skins, the impression easily takes hold that the phenomena particularly noticed during the thus belated season are themselves likewise belated.

FEEDING GROUNDS OF COMMANDER ISLANDS SEALS.

It was formerly held by those who had anything to do with the Russian fur seals that the females only went a comparatively short distance from the islands to feed. This assumption was based upon no observed fact whatsoever, and was only a general expression of the total ignorance of the true location of these feeding grounds.

When the Canadian sealing fleet, in 1892, in a body resorted to the Commander Islands, after having been excluded from the eastern portion of Bering Sea, an inkling of the truth was felt, and undoubtedly to some extent influenced those who were responsible for the 30-mile zone fixed in the Russian-British modus vivendi of 1893. But it was not until the logs of the more successful schooners had been published and their positions at noon every day, with numbers of seals taken during the past twenty-four hours, plotted on the charts, that the true status of affairs was made clear. It was then manifest that the bulk of the catch was taken on a comparatively limited area south of Copper Island, approximately bounded by 52° 30′ and 54° 30′ north latitude, and by 165° and 170° east longitude. The richest hauls, however, were made within a much more restricted area south and south-southwest and on the line between this area and the rookeries of that island. As a matter of fact, the overwhelming majority of the skins were taken more than 30 miles distant from the island, and most of the skins that were taken closer in were secured by those of the schooners that found it more tempting to raid the rookeries from a safe distance. The time of the season during which the fleet operated that year was chiefly during the months of July and August. There is, therefore, not the slightest doubt about the correctness of regarding the area as above limited as the feeding grounds of the seals frequenting the Copper Island breeding grounds (pl. 1).

The season of 1892 failed to throw much light upon the question where the Bering Island seals go to feed during the same months. The *Vancouver Belle* made a reconnaissance to the northeast and north of Bering Island, at a distance varying between 20 and 100 miles, but obtained only a few (13) stray seals, and hastened back to the Copper Island grounds. The *Maud S.* made a similar trip of exploration around Bering Island with a similar result (27 seals). The experience of the fleet, however, demonstrated pretty clearly that the Bering Island seals do not go to the Copper Island grounds to feed. It seems that the *Henry Dennis* was on or near the Bering Island feeding grounds, for between August 1 and 7 she took 189 seals in a restricted area a little more than 100 miles due northeast of the Bering Island North Rookery.

The experience of 1895 seems to show that the Bering Island feeding grounds are somewhat more distant and more extensive than the Copper

Island ones, for the *Jane Grey* took 65 seals between August 16 and 21 about 25 miles from the Kamchatkan coast, east of Cape Afrika, while the *Ida Etta* obtained 180 skins between August 20 and September 4, 20 to 30 miles northeast and east from Cape Nagikinski, as detailed elsewhere in this report.

IV.—THE RUSSIAN SEALING INDUSTRY.

HISTORICAL.

Even before the discovery of the Commander Islands, in 1741, the fur seals were known to and hunted by the natives of Kamchatka. Krasheninnikof (Hist. Kamtschatka, 1764, p. 124 seq.) refers to this catch as follows:

> The sea cats are caught in the spring and in the month of *September*, about the river *Shupanova*, at which times they go from the *Kurilskoy* Island to the *American* [i. e., Commander Islands] coast; but the most are catched about the cape of *Krenotzkoy*, as between this and the cape *Shupinskoy* the sea is generally calm and affords them properer places to retire to. Almost all the females that are caught in the spring are pregnant; and such as are near their time of bringing forth their young are immediately opened, and the young taken out and skinned. None of them are to be seen from the beginning of *June* to the end of *August*, when they return from the south [!] with their young. * * * They seldom come ashore about *Kamtsokatka;* so that the inhabitants chace them in boats, and throw darts or harpoons at them, which stick in their body. To this harpoon is fixed one end of a rope, and the other is in the vessel, and by this rope they draw them towards the boat; but here they are to be particularly cautious whenever they chace one, if he comes near, not to suffer him to fasten upon the side of the boat with his forepaws and overturn it, to prevent which some of the fishermen stand ready with axes to cut off his paws.

In later times there has been no such regular catch of fur seals on the Kamchatkan Coast, for the reason that now the whole region from the Bay of Avatcha to the mouth of the river Kamchatka is entirely uninhabited.

Following the discovery of the Commander Islands numerous vessels were fitted out to hunt fur-bearing animals on these islands and, later, to lay in provisions of sea-cow meat for use in their protracted journeys to the Aleutian Islands farther east (see Stejneger, American Naturalist, 1887, pp. 1049–1052). It does not seem, however, as if the fur-seal skins were in demand. The skins were not particularly valuable; the sea otters and blue foxes were still numerous; the men had more pressing and profitable things to attend to; the drying of the seal skins was both laborious and precarious in the damp climate; in brief, it did not pay to bother with the fur seals at that period. Later, however, all this was changed. The more costly furs were getting scarce and the enterprising Russian merchants, now following upon the heels of the promyshleniks, or hunters, had found a profitable market in China for large quantities of the cheaper fur seal. Foremost among these merchants was Grigori Ivanovich Shelikof, whose name, from 1776 on to his death in 1795, was connected with the fur trade and colonization of that part of the world. He seems to have been the first to pay special attention to the skins of the fur seal, and was for a long time the only one who gathered them in large quantities.

The discovery of the Pribilof Islands, with their countless numbers of fur seals, did not seem to have made any difference in this. On the contrary, the increased supply seems to have created an increased demand. Under the pressure of a fierce competition a senseless slaughter of the fur seals was carried on until the whole business was

threatened with destruction, from which it was alone rescued by the formation of a dominant company, which soon swallowed up the smaller concerns and obtained a monopoly of the entire trade of the region.

By the establishment of the great Russian-American Company, in 1799, Shelikof's enterprise was merged into the larger concern, and the Commander Islands became part of what was from now on in reality a Russian colony. The supply of fur-bearing animals must have become practically exhausted on the Commander Islands by that time, for the islands were abandoned and vessels touched but seldom, scarcely one in five years. In 1826, during the second term of the Russian-American Company, a new district, the district of Atkha, was formed, consisting of the Commander Islands and the western portion of the Aleutian chain from Attu to the island of Yunaska, consequently including the Near Islands, the Rat Islands, and the Andreanof group. The agency was located on Atkha Island.

Shortly afterwards the permanent colonization of the Commander Islands was undertaken, and Aleuts and half-breeds from the Andreanof Islands and from Attu were transferred to the new settlements on Copper and Bering islands. This was accomplished before 1828, in which year Admiral Lütke, in the corvette *Seniavin*, visited the latter island and communicated with the inhabitants of the settlement at Saranna, on the north coast.[1]

Very little is known concerning the islands and the seal industry on the islands during their occupancy by the Russian-American Company. Its jealousy of both foreign and domestic interference caused it to keep all details of its dealings secret, and as the islands were entirely away from the ordinary line of travel, scarcely any outside information is to be had. The overseers were probably unimportant, possibly uneducated persons, and the reports of the inspectors occasionally visiting the islands are probably buried in the St. Petersburg archives of the company.

There can be no doubt that the alarming decrease in the Pribilof catch, which in ten years dropped from 60,000 skins to less than 20,000, caused the company to colonize the Commander Islands in order to work the seal rookeries there. In 1821 this decrease was threatening enough to make the board of administration of the company suggest stopping killing on the Pribilofs altogether for one season, if certain islands which were supposed to exist north of the Pribilof Islands should be found to be fictitious or not to harbor the hoped-for fur seals (Fur Seal Arb., VIII, p. 323). The discovery was evidently not made, and the reoccupation of the Commander Islands resulted.

It seems, however, that the Greek war of independence against Turkey had a depressing effect on the fur market of Europe, and it is therefore not improbable that the Pribilof Islands were capable of filling the demand until the restoration of order in that part of the world, about 1830. By this time the annual yield of the Pribilofs had fallen to 16,000, and shortly after even as low as 6,000, the average during the ten years from 1832 to 1841, inclusive, being less than 9,700 skins a year. As I have shown elsewhere, this was not nearly enough to satisfy the demand, which probably averaged in the neighborhood of 25,000 during this period, and the deficiency was probably made up in the Commander Islands.

With the destructive methods then in vogue, it is not to be wondered at if the Commander Islands were unable to furnish an annual quota

[1] This fact shows that Dybowski's statement that the settlements were not established until 1830 (Wyspy Komand, p. 36) is erroneous.

of, say, 14,000 skins for any considerable length of time. The close season which Chief Manager Etholin asked for and probably instituted in 1843 was therefore very necessary. From this time until the end of the régime of the Russian-American Company the yield of the Commander Islands was very insignificant. It is true, the reports were in 1859 that the rookeries were again crowded, a condition evidently due to the improved methods, especially the prohibition of killing the females, but as the Pribilof Islands showed the same favorable conditions and could easily supply the demand, there was no inducement for the chief management in Sitka to incur the increased labor and risk at the more distant islands, and it is probable that the Commander Islands were only worked enough to supply the kind and quantity of skins demanded for the Siberian (Kiakhta) trade, a comparatively insignificant amount (5,000 to 6,000 a year).

In a general way the condition of affairs on the Commander Islands during this period must have been very similar to that on the Pribilofs, though from their remoteness from the seat of the general management and their comparative insignificance the criticisms of the company's dealings which were current probably applied with still greater force to the Commander Islands.

Once a year the islands had communication with the outer world. A small vessel brought supplies, etc., from Sitka and carried away the dried skins.[1] In the earlier days, after the recolonization of the islands, the skins were apparently shipped to one of the ports in the Okhotsk Sea, but this was changed later, so that all the furs were first sent to Sitka, whence they were reshipped the following year. This method, however, involving additional cost and risk, was discontinued in 1854, and the vessel which brought the supplies and inspectors was henceforth ordered to proceed with the skins to Ayan, on the Okhotsk Sea, by way of the Kuril district (Fur Seal Arb., VIII, p. 349). Occasionally some of the vessels of the semimilitary navy of the company would call at the islands on their cruises of protection against the foreign—chiefly American—fleets of whale ships which infested the waters in those days, and even landed on and raided the islands.[2]

When finally, in 1868, the Russian-American Company abandoned the management of the islands, the so-called "interregnum" commenced. The islands were placed under the jurisdiction of the Petropaulski district, and the first thing the ispravnik, or official, of that place did was to issue a proclamation declaring the natives to be free men[3] and giving them liberty and power to regulate all their affairs, including the catch of the fur-bearing animals. It seems that only a noncommissioned officer, Teterin, was left in charge.

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[1] I am not aware that skins were ever salted on the Commander Islands during the time of the Russian-American Company.

[2] Note, for instance, the case told by Tikhmenief (Istor. Oboz. Ross. Amer. Komp., II, p. 131 f) to the effect that "in 1847 one of the whalers came to Bering Island, and on the captain being told that he must not capture sea lions on a neighboring small island [evidently Ari-Kamen], he ordered the overseer of the island to be turned off his ship, and immediately went on shore with his men with the evident intention of disregarding the prohibition. It was only when active steps were taken to resist them that the whalers left, but before going they cut down a plantation, which had been grown with great trouble, the island being without other trees or shrubs." It is curious to reflect that the British case at the Paris Tribunal has taken this incident as a proof that "traffic in fur-seal skins was carried on by a United States whaler at Bering Island" (Fur Seal Arb., IV, p. 66). There never were fur seals on the island referred to, though, on the contrary, it formerly abounded in sea lions (sivutch), the only animal mentioned by Tikhmenief.

[3] During the régime of the Russian-American Company the natives were practically serfs.

Quite a number of foreign merchants, among them the Russian vice-consul at Honolulu, Mr. Pfluger, but mostly American citizens, prominent among whom was the so-called "Ice Company" of San Francisco, flocked to the islands, their schooners bringing all sorts of trade goods, necessities, and luxuries of life—particularly the latter—and, not to be forgotten, plenty of alcohol. In return they brought away as many pelts as they could induce the natives to secure. The rivalry between the traders was very sharp, and the natives had high carnival most of the time as a consequence. Gambling and drinking prevailed to a fearful extent, and the natives were willing to sell anything and everything for whisky. The drunken debauches were carried on right on the rookeries, and it is authoritatively stated that, as the skins of the female seals were higher priced, because of their finer fur, quite a number of this class were slain. Besides, drunken men would not be very apt to discriminate as nicely as necessary to distinguish the females from the bachelors. It is also authoritatively asserted that a count of the skins taken was never kept, neither by the natives nor by the police authorities in Petropaulski. The figures presented elsewhere, giving the total export of skins for the period as from 60,000 to 65,000, are therefore only guesses, and are probably underestimated rather than overestimated. At least one of the vessels, with its valuable cargo of furs, was lost. As a result of this reckless slaughter, the rookeries were nearly ruined in those three years.

In 1871 there was a wholesome awakening. Hutchinson, Kohl & Co., a San Francisco firm which had already acquired extensive property and trading rights in Alaska, had opened negotiations with the authorities at St. Petersburg for a lease of the islands on practically the same conditions upon which the Alaska Commercial Company leased the Pribilof Islands of the United States, and the contract was signed February 18, 1871, but was kept a profound secret until the following summer. In the meantime the Ice Company, ignorant of the lease and in anticipation of a profitable season, had dispatched a large cargo of merchandise to the islands. Shortly after, the representative of the new company arrived with the lease and took possession. As the lease not only included the monopoly of taking the furs but also of trading with the natives, there was no other choice for the Ice Company but to sell out to its successful rival at a ruinous price. So well had the secret been kept that even the ispravnik at Petropaulski, who was still to retain jurisdiction over the islands, did not know of the lease and the impending change until it was presented to him by the company's representative alluded to.

With the taking of possession by the new company a new order of things commenced. The firm's name was altered to Hutchinson, Kohl, Philippeus & Co. It had been necessary, in order to obtain the lease from the Russian authorities, to include at least one Russian subject in the firm, and Mr. Philippeus, a Russian merchant having great trading interests in Kamchatka and neighboring districts, was paid a considerable amount for the use of his name in this connection. Nominally, therefore, the company was Russian, but practically it was American. Their vessels were flying the Russian flag, but they were American property. In 1872 Hutchinson, Kohl & Co. sold their interest and property in Alaska to the Alaska Commercial Company of San Francisco, members of which also acquired a controlling interest in the Russian company. From that time on until the expiration of the lease in February, 1891, the management of the company's affairs on the Commander

Islands and Tiuleni Island were in the hands of the celebrated firm, with headquarters at 310 Sansome street, San Francisco.

The management now became practically identical with that on the Pribilofs, and an employee from the latter was sent over to the Commander Islands to teach the natives the improved methods of taking the seals and curing the skins adopted on the former. It is, therefore, unnecessary to go into details concerning this part of the industry, which has been described so often in connection with the Pribilof Islands.

The affairs as I found them in 1882 were managed in the following way:

On each island there was a local agent and storekeeper,[1] who had general charge of affairs, except the management of the taking of the skins, and who kept the books and accounts. The sealing business proper was attended to by a sealer for each rookery, who accepted the skins brought by the natives to the salt-house door and superintended the salting, bundling, etc. During this period these overseers were not natives, except Mr. Fedor Volokitin, a "creole," who represented the company at the South Rookery, Bering Island. The general management of the business was in the hands of Mr. John Sandman, the captain of the company's steamer *Aleksander II.*

Practically the whole administration of the business rested with the company, not even a maximum limit as to the number of skins to be taken being contained in the lease. The function of the Government official stationed on the islands was chiefly confined to seeing that the company did not overstep its contract; that the regulations for the protection of the seals, as well as the natives, were enforced; to supervise the killing, keep account of the number of skins taken, to receive and distribute the money for the skins to the natives, etc.

The skins were taken by the company's steamer from the islands to Petropaulski in installments and there reloaded before shipment to San Francisco. One of the reasons for this arrangement was that Petropaulski is the only port of entry in that part of the Russian Empire, and as the skins were to be shipped to San Francisco, a foreign port, clearance paper had to be obtained in Petropaulski, while at the same time the insurance companies would only assume the risk from the sailing from the latter port. At this place, therefore, Hutchinson, Kohl, Philippeus & Co. maintained quite an extensive establishment. Large warehouses and a wharf were built on a spit in the outer harbor near the extreme end of the Nikolski Peninsula, while in the town itself a large and commodious house for the accommodation of the resident agent and his family was erected.

This position as resident general agent in Petropaulski was held to the expiration of the term of Hutchinson, Kohl, Philippeus & Co. by Mr. Joseph Lugebil, who extended the company's hospitality in a manner pleasantly remembered by all who had the good fortune to visit Petropaulski during that period.

Under the lease the company was to keep a general store for the sale of articles of food, clothing, etc., to the natives on each of the Com-

[1] On Copper Island: Mr. Alexander Kostromitinof, who succeeded Mr. C. F. Emil Krebs. The latter served from 1871 to 1881. Mr. Emil Kluge followed after Mr. Kostromitinof until the fall of 1894, when he was succeeded by Mr. A. Cautor.

On Bering Island: Mr. George Chernick. He died on the island in the fall of 1887, Mr. F. Volokitin tending the station during the following winter. In the spring of 1888 Mr. Kostromitinof was transferred from Copper Island, being relieved in 1890 by Mr. Julius Lindquist. He was succeeded in about a year by Mr. Waldemar Paetz, of St. Petersburg, whose term expired in 1895, Mr. Emil Kluge being then transferred from Copper Island.

mander Islands. The merchandise was imported free of duty, but the company was only allowed to charge San Francisco wholesale prices plus a certain fixed percentage as compensation for freighting and storing the goods. The company decided about the kind and quantity of goods to be brought, while the administrator appointed by the Government saw to it that the prices charged were not in excess of the contract and that the quality of the goods was satisfactory.

The original lease stipulated a price of 2 silver rubles ($1.33) per skin accepted by the company, but in a subsequent supplementary contract the tax, from 1877 on, was reduced to 1.75 rubles ($1.17) for the first 30,000 skins. The natives received for their work 1 ruble (66⅔ cents) per skin for the first 30,000, and one-half ruble (33⅓ cents) for each skin over 30,000. The company had to pay a yearly rental of 5,000 rubles, and to contribute a considerable amount toward the support of the natives.[1]

There being no serviceable buildings left by the old company, Hutchinson, Kohl, Philippeus & Co. had to build a number of houses on both islands to accommodate their goods and their men. Salt houses were erected on all the rookeries, and near each a small frame hut for occupancy by the company's "sealer" during the killing season. In the main village on Bering Island several large stores and warehouses, a cow stable, boathouse, bath house, besides two dwelling houses, were built, as well as similar, though somewhat smaller structures in the main village on Copper Island. These are all frame houses, built of California or Puget Sound lumber by an American head carpenter with the assistance of native workingmen.

Although under no legal obligation to do so, the company gradually built and presented to nearly all the families on both islands commodious frame houses, mostly with four rooms, similarly built, the natives receiving full title to them.

By careful management the seal rookeries, which at the beginning of the company's term scarcely yielded 30,000 skins annually, toward the end produced about 50,000 a year, the annual average between 1880 and 1889 being nearly 45,000. Among the entries in the diaries of the company's agents during this period are many like the following: "Natives say there are a good many female seals this year, and holostiaks, too" (Bering Island, July 23, 1877). "Assistant Starshena (chief) has been on South Rookery; reports that both holostiaks and females are double in quantity, as has been before, but not many old bulls. On the North Rookery there are more seals, too" (Bering Island, August 12, 1877). "Natives report good many thousand seals more this year than ever before" (Bering Island, August 2, 1880).

The lease of Hutchinson, Kohl, Philippeus & Co. expired in February, 1891, and as the new lease was awarded to a new company, the old company's steamer, *Aleksander II*, was sent early in the year to take off the fall catch of 1890, consisting of 5,800 skins.

The new company, into the hands of which the sealing industry of the Commander Islands and Tiuleni now passed, was incorporated in St. Petersburg under the name "Russkoye Tovarishtchestvo Kotikovikh Promislof,"[2] or the "Russian Seal Skin Company," as the name of the firm is officially rendered in English.

By the new contract the mutual relationship of the Government, the natives, and the company was materially changed, considerable power

[1] The text of the contract, with supplement, is printed in Sbornik Glavn. Off. Dokum. Upravl. Vost. Sibir., III, ii, Append., pp. 1–8.

[2] Russian Company for Fur-Seal Hunting (lit. transl.).

being placed in the hands of the administrator, while the direct dealings of the company with the natives were greatly reduced. The gradual americanization of the natives under the régime of Hutchinson, Kohl, Philippeus & Co. was undoubtedly distasteful to at least one of the inspectors, whose opinion with the St. Petersburg authorities must have been of great weight, as there is now a manifest tendency toward a rerussification of the business and its methods.

The tax to be paid for skins was raised considerably. Under the present contract the company pays to the Russian Government 10.38 "metallic" rubles (gold) per skin taken, one-half to be paid in St. Petersburg, in the month of May, in advance of the sealing season. This advance payment, from 1891 to 1894, was made on a basis of 50,000 skins to be taken. In the meantime Russia had agreed with England not to take more than 30,000 skins a year; hence from 1895 the advance payment was made on a basis of only 30,000 skins. The other half is paid at the end of the season, when the amount of the catch is known. The amount which the Russian Government pays the natives for their work, 1.50 rubles per skin, is usually paid at the islands by the company at the end of the season and deducted from the draft of the balance due in St. Petersburg. It will be seen that by this arrangement the Russian Government is amply protected, but in addition the company is obliged to deposit imperial Russian bonds with the Government in St. Petersburg to an amount equaling that of the advance payment.

The entire sealing business is exclusively in the hands of the local administration, and the company has nothing further to do with it than to receive the skins at the side of the vessel, except that it accepts or rejects the skins immediately upon their being brought from the killing grounds and superintends the salting of the skins, for which purpose it also furnishes the salt. The administrator, therefore, has unlimited power to determine how many seals are to be taken, and also how, when, where, and by whom they are to be taken. The Government undertakes the driving, killing, skinning, salting, bundling, and delivery. The administration takes the temporary receipt for the skins issued by the company's overseer at the salt houses, and finally the agent's receipt when the skins are received on board the company's vessel. The skins are then brought to Petropaulski, where the ispravnik can not give clearance papers without first receiving the certificate of the administrator of the islands that the company has complied with the Government requirements.

Like Hutchinson, Kohl, Philippeus & Co., whose establishments both on the islands and in Petropaulski the Russian Seal Skin Company acquired, the latter has the exclusive right to keep a store on each island in which to sell to the natives such staples and articles as are necessary for their existence and comfort. The company is not allowed to bring such articles as it may deem thus necessary, but the administrator each year makes out a detailed list of quantities and qualities, specified in the minutest details, which goods the company, upon his requisition, are obliged to bring during the year and to sell to the natives at a certain stipulated percentage over the certified market price, the Government showing a decided preference for Russian goods. Should any of the goods thus ordered remain unsold on the company's hands, the loss falls upon the company. As a rule, the company sells for cash to the natives, unless the administrator expressly authorizes a family head to take goods on credit, in which individual case the amount is specifically limited. At the first distribution of money for work or furs the amount is paid and the debt canceled before new sales can be made.

For the privilege of thus trading, the company has to pay all the various license and guild fees to which the Russian merchants are liable, in this case amounting to many hundred rubles.

STATISTICS.

Having thus given a brief résumé of the history of the fur-seal industry on the Russian side, as it is revealed in the scanty records, it may be well to present, in chronological order, such statistics as I have been able to bring together showing the number of fur seals taken at various times on the Commander Islands. Unfortunately, many of the figures submitted are only hypothetical, some even highly problematical, but I have accompanied them with a running comment which it is hoped is sufficiently explicit to show how the estimates were made.

It is not probable that any great slaughter of the fur seals took place during the first period. Bassof and Trapeznikof returned from the Commander Islands in 1746 with a cargo of furs, among which are mentioned 2,000 fur seals (Bancroft, Works, XXXIII, p. 100), but in the returns of the other expeditions between 1743 and 1750 no other mention of seal skins is made. As sea otters and blue foxes are mentioned frequently, it is evident that the fur-seal skins were of but little importance and value. It is also probable that in those days only the pups were taken, for it is specifically stated that Yugof's cargo of fur seals, when the vessel returned in 1754 from Copper Island, consisted of 1,765 black pups and 447 gray ones (Neue Nachr. Neuent. Ins., 1776, p. 22). Tolstykh, likewise, in 1750 returned from Bering Island with 840 "young fur-seal skins or *kotiki*" (ibid., p. 26), and Vorobief in 1752 is said to have brought to Kamchatka, probably from the Commander Islands, "5,700 black and 1,310 gray young fur seals or *kotiki*" (ibid., p. 27). Drushinin in 1755 returned with 2,500 seals taken on Bering Island (ibid., p. 32). These, as well as the 2,000 brought by the *Vladimir* in 1767 and the 630 in Popof's *Ioann Pretecha* in 1772, were also probably young.

As I have shown elsewhere (Amer. Natural., XXI, Dec., 1887, p. 1053), the sea cow on the Commander Islands had become nearly extinct in 1763. The sea otter had also been killed off there to such an extent that the hunt had become unprofitable, and the blue foxes likewise. As the fur-seal skins were of comparatively little value, there were no inducements for the fur hunters to visit the islands after that time as frequently as before. It is certain enough, as shown above, that the fur seals had not left the Commander Islands, or become nearly extinct there, as alleged by Elliott, as there are records of vessels having actually visited the islands between 1760 and 1786, bringing plenty of seal skins back. As a matter of fact, it was during this very period that the heaviest slaughter of fur seals took place on the Commander Islands. It appears that Shelikof was the first trader to deal extensively in fur seals, and his name is not mentioned until 1776. It is stated that up to 1780, consequently in four years, he had imported 70,000 fur-seal skins. It is furthermore stated that his vessel, *Sv. Ioann Rylskoi*, returned in 1786 with 18,000 fur seals. In the same year Protassof returned with a "cargo consisting chiefly of fur seals." Panof's vessel, *Sv. Georgi*, which also returned in 1786, had less luck, having secured only 1,000 seal skins. As the Pribilof Islands were not discovered until that year (the first cargo from there did not arrive in Okhotsk until 1789), the bulk of the fur-seal skins brought to Kamchatka must have come from Commander Islands (see Bancroft, Works, XXXIII, pp. 185–191). There is record of about 100,000 skins having

Skins taken for shipment from Commander Islands, 1862–1867, by the Russian-American Company after the expiration of its third term.

Notes.	Year.	Number.
Only gray pups killed	1862	4,000
Do	1863	4,500
Do	1864	5,000
Do	1865	4,000
Do	1866	4,000
Do	1867	4,000
Total		*25,500

*In Nordenskiöld's "Voyage of the Vega" (Am. ed., p. 609), there is a table of figures relating to the catch of seals on the Commander Islands involving several errors. Aside from the fact that it purports to give the catch on Bering Island only, while in reality the figures represent the catch on both Bering and Copper islands, it gives the catch for the year 1867 as 27,500 seals. Here is apparently a double error. Compared with the corrected figures given by Elliott (Monogr., p. 113), 27,500 is evidently meant to include the catch from 1862 to 1867, inclusive, in which case, however, the statement is 2,000 too high.

The table of the British commissioners in the note says "including Robben Island," but no skins were regularly taken there in those days.

During the so-called "interregnum"—that is, the years 1868–1870, inclusive—from the time the Russian-American Company abandoned the management of the islands until Hutchinson, Kohl, Philippeus & Co. assumed control, no restrictions, except such as the natives themselves might impose and enforce, were placed upon the slaughter, which in these three years averaged about 20,000 annually. The seals taken up to that time were exclusively gray pups, but during the interregnum at least one of the traders, viz, Mr. J. Malovanski, had become aware of the increased demand and higher prices for bachelor seals, and he consequently induced the natives to bring him skins of the latter. However, of the 60,000 killed, a great many must have been young ones, but the proportion between the two classes will probably never be known. Three sets of figures are given for the catch in these three years, as follows:

Year.	Elliott (Monograph, p. 113).	Niebaum (Fur Seal Arbitration, III, p. 202).	British Bering Sea Commissioners (Rep., p. 214).
1868	12,000	*15,000	12,000
1869	24,000	20,000	21,000
1870	24,000	30,000	27,500
Total	60,000	65,000	60,500

*About.

It is doubtful whether any of these figures are exact, but as they agree pretty well, and as the last set represents the official figures of the Russian administrator, they may be taken as authentic.[1]

Upon the arrival on the scene of the agents of Hutchinson, Kohl, Philippeus & Co., in 1871, it was found that the indiscriminate slaughter

[1] I may here correct a mistake in the oft-mentioned table presented by the British Bering Sea Commissioners (Rep., p. 214). They run a line between the years 1869 and 1870 and mark it "Alaska Commercial Company's first term began." As a matter of fact the term (and only term) of Hutchinson, Kohl, Philippeus & Co., the term and company meant, did not begin until 1871, and the catch of 27,500 skins during 1870 is therefore to be credited to the merchants trading during the interregnum.

But even Veniaminof's figures are not beyond suspicion. In his "Zapiski," published in St. Petersburg in 1840, vol. I, chap. XII, he writes as follows (according to Elliott, Monogr., p. 165): "The company on the island of St. Paul killed from 60,000 to 80,000 fur seals per annum, but in the last time (1833?) [Elliott's interpolation], with all possible care in getting them, they took only 12,000. On the island of St. George, instead of getting 40,000 or 35,000, only 1,300 were killed." Now, if we examine the table of his figures as presented by Elliott (Monogr., p. 143), we find no year between 1817 and 1837 in which 12,000 seals were taken on St. Paul (13,200 in 1833), nor 1,300 on St. George.

While thus the figures relating to the Pribilof Islands are dubious and unsatisfactory, there are next to no records in regard to the catch on the Commander Islands between 1787 and 1862. In fact, there is hardly a scrap of available history to be found on the subject during that period.

There is no reason to doubt, however, that the slaughter of the fur seals on the Commander Islands after 1787 was as enormous as on the Pribilofs, proportionately (where, according to my calculation, the average annual killing was 86,511.)[1] The result of this indiscriminate wholesale slaughter undoubtedly brought the rookeries to a very low ebb, for we find the Commander Islands practically abandoned shortly after the establishment of the Russian-American Company, and a permanent population was not again established until after 1826, by which time the rookeries must have recuperated to some extent. The same old method of killing the young ones, and not even sparing the females, must soon have brought on the inevitable result of depletion, for we find that the chief manager of the colonies, Capt. I. A. Kuprianof, as early as 1839, had conferred with the baidar-steerer Shayashnikof as to when, in his opinion, it would be possible to begin taking a full catch on St. Paul Island in order to establish a close time for sealing on St. George and the Commander Islands, and that Captain Etholin, his successor as chief manager, in 1842 asked permission to institute a close season on the Commander Islands, a permission that was granted the following year (Fur Seal Arb., XVI, pp. 76, 114).[2]

Shortly after, the prohibition to kill females was enforced, and as a result of both measures the seals were again increasing, so that in 1859 the chief manager could write to St. Petersburg that, according to the reports of the officials of "even those of the Commander Islands, the seals have increased in numbers on all accessible places to such an extent that the areas occupied by them appear crowded." It is evident, however, that the managers proceeded with caution, notwithstanding, for in the years from 1862 to 1867, the year of the final dissolution of the Russian-American Company, only 4,000 to 5,000 seals (gray pups) a year are said to have been taken. These figures are from the following table, which is copied from the report of the British Bering Sea Commissioners (p. 214), those from 1865 being official:

[1] Not only were females and pups killed, but the "bulls and young bulls" also, for in spite of their coarse hair the Chinese at Kiakhta paid high prices for them (Fur Seal Arb., VII, p. 165).

[2] Figures representing the catch during the Russian-American Company's terms are given in the final table of shipments by periods.

1883 and 1891 from Bering and Copper islands separately, kindly furnished by Mr. Max Heilbronner, of the Alaska Commercial Company:

Number of fur-seal skins shipped from Commander Islands and Robben Island from 1871 to 1895, inclusive.

Year.	Bering Island.	Copper Island.	Robben Island.	Total.
1871	0	3,658	0	3,658
1872	14,392	14,964	0	29,356
1873	13,044	14,661	2,694	30,399
1874	13,406	15,480	2,414	31,300
1875	12,712	20,440	3,127	36,279
1876	10,358	15,074	1,528	26,960
1877	7,192	11,392	2,949	21,533
1878	8,130	20,070	3,140	31,340
1879	13,572	25,166	4,002	42,740
1880	15,160	30,014	3,330	48,504
1881	16,078	23,237	4,207	43,522
1882	18,512	22,002	4,106	44,620
1883	13,480	13,170	2,049	28,699
1884	21,384	28,060	3,819	53,263
1885	20,966	20,771	1,838	43,575
1886	24,555	30,036	0	54,591
1887	21,298	25,049	0	46,347
1888	26,456	20,906	0	47,362
1889	23,783	29,076	0	52,859
1890	19,996	32,328	1,456	53,780
1891	*17,884	†18,065	450	36,815
1892	16,590	14,654	0	31,244
1893	13,992	17,294	1,500	32,786
1894	13,165	13,122	1,000	27,287
1895	9,526	6,893	1,300	17,719
Total	385,631	485,582	44,909	916,122

* Of these, Hutchinson, Kohl, Philippeus & Co. shipped 4,059; the Russian Seal Skin Co. shipped 13,825.
† Of these, Hutchinson, Kohl, Philippeus & Co. shipped 1,741; the Russian Seal Skin Co. shipped 16,324.

To this total should be added 416 skins taken from the schooner *J. H. Lewis*, seized in 1891, and 2,152 skins taken in 1892 from the seized schooners, which obtained them chiefly off Copper Island. The latter skins were sold by the Russian Government, part in Petropaulski (1,124), part in London, and were shipped in the company's steamer to San Francisco (see Fur Seal Arb., VII, pp. 375, 417). The total number of skins shipped from the Russian seal islands from 1871 to 1895, inclusive, is, therefore, 918,690.

That this list does not give an accurate idea of the number of seals killed in each particular year is clear from the fact that the fall catch of the year is not shipped until the following summer. In some years there was no fall catch at all, in others it was very considerable. Thus, for instance, in 1871, the first year of the lease of Hutchinson, Kohl, Philippeus & Co., no less than 10,500 seals were killed on both islands, of which, however, only 3,658 were shipped from Copper Island (the island count, or 3,614 by the San Francisco count), while none at all were shipped from Bering Island. Full data of the actual number of seals killed in each year are not at hand, but the following table, based upon data furnished me by the late Mr. G. Chernick, then station keeper on Bering Island, may serve as an indication of the difference between a list of seals killed and one of skins shipped:

Seals killed and skins shipped from Bering Island, 1871–1882.

Year.	Killed.			Shipped.	
	Total.	Summer.	Fall.	Skins.	Year.
1871	4,500			14,392	1872
1872	12,912	9,892	3,020	13,044	1873
1873	13,040	10,024	3,016	13,406	1874
1874	13,034	10,390	2,644	12,712	1875
1875	11,790	10,068	1,722	10,358	1876
1876	9,822	8,636	1,186	7,192	1877
1877	6,006	6,006		8,130	1878
1878	8,674	8,130	544	13,572	1879
1879	13,028	13,028		15,160	1880
1880	15,160	15,160		16,078	1881
1881	16,078	16,078		18,512	1882
1882	18,512	18,512			

It would have been interesting and instructive to have a list of skins taken from each rookery for a considerable length of time, but I have been unable to obtain the necessary data. The following table, however, furnishes this information for the years 1891 to 1895.

Fur seals killed on the Commander Islands, 1891–1895.

Locality and season.	1891.	1892.	1893.	1894.	1895.
Bering Island:					
Summer—					
North Rookery	13,177	16,171	12,156	12,516	8,370
South Rookery	648	410	327	627	564
Fall				592	(?)
North Rookery		1,422			
South Rookery		87	22		
Copper Island:					
Summer					6,396
Karabelni	3,664	4,552	5,343	4,268	
Glinka	12,660	10,102	10,938	8,387	
Fall				497	(?)
Karabelni		451	86		
Glinka		562	381		
Total	30,149	33,766	29,253	26,887	15,330

Shipment of skins from the Commander Islands (exclusive of Robben Island), by periods.

1746 to 1760, 15 years (period of plenty of sea otters, foxes, and sea cows), annual average about 1,333 (total about)	20,000
1761 to 1786, 16 years (other fur-bearing animals becoming scarce and sea cow exterminated), annual average about 6,250 (total about)	100,000
1787 to 1798, 12 years (from discovery of Pribilof Islands to Russian-American Company), same annual average (total in round figures about)	50,000
1799 to 1826, 28 years (from Russian-American Company to establishment of Atka district), annual average about 476 (total in round figures about)	15,000
1827 to 1841, 15 years (to expiration of Russian-American Company's second term), yearly average about 10,000 (or total about)	150,000
1842 to 1861, 20 years (Russian-American Company's third term), yearly average 476 (total about)	9,526
1862 to 1867, 6 years (hold-over of Russian-American Company), yearly average 4,250 (total about)	25,500
1868 to 1870, 3 years (interregnum), yearly average 20,166 (total about)	60,500
1871 to 1891, 20 years (lease of Hutchinson, Kohl, Philippeus & Co.), yearly average 36,791 (total)	735,828
1891 to 1895, 5 years (lease of Russian Seal Skin Company to date), yearly average 27,077 (total)	135,385
Skins seized within Territorial waters, 1891 and 1892	2,568
Grand total (about)	1,304,307

As previously stated, some of these figures do not pretend to be more than guesses. Most of them are explained in the foregoing pages, but the figures for the years from 1787 to 1861 need some explanatory remarks as to how these guesses were made.

From 1787 to 1798, inclusive, twelve years, I have assumed the annual average to have equaled that of the foregoing twenty-six years, giving 46,152, or, in round figures, 50,000.

From 1799 to 1826, the period of twenty-eight years during the lease of the Russian-American Company when the yield was not sufficient to induce the company to establish settlements on the islands, I have assumed that the annual average can not have exceeded the yield between 1842 and 1861, when the company still maintained the settlements, or, in round figures, 15,000.

For the fifteen years from 1827 to 1841, inclusive, I have made the following guess: Assuming that Wrangell at the end of 1833 had 30,000 skins on hand, about 25,000 (Wrangell shipped, 1827-1833, 132,160+assumed surplus on hand, 30,000=162,000—Veniaminof's figures for killed seals on Pribilof in years 1826–1832, 137,503=24,658) must have been taken on the Commander Islands from 1827 to 1832, inclusive. In 1840 the Russians had a demand for not over 30,000 skins annually (Simpson, Overl. Journ., p. 131). Probably they were nearly able to fill it, for Mr. E. Teichmann states (Fur Seal Arb., III, p. 579) that "up to the year 1853 about 20,000 skins were annually received in London" from the Russian-American Company. It is probably safe to assume, then, that 6,000 went to Kiakhta. Now, during the nine years from 1833 to 1841, inclusive, the Pribilof Islands yielded only 80,135. The assumed sale being 234,000 skins, and there being only 30,000 on hand and 80,000 killed on the Pribilofs, it follows that a yearly average of about 14,000 would have to be obtained on the Commander Islands, or about 125,000, to which should be added the 25,000 assumed to have been taken from 1827 to 1833, giving a total of 150,000.[1]

The only figures relating directly to the yield of the Commander Islands during this period are those by Tikhmenief, that there were exported from Bering Island, during the third term of the Russian-American Company, 9,526 fur-seal skins (Istor. Oboz. Obraz. Ross.-Amer. Komp., II, p. 296). These figures, from the connection, are meant to cover the whole export from the Commander Islands, as from the fact that the population of Copper Island at that time was but 90, all told, it seems probable that no fur seals were taken on Copper Island at all.

ADMINISTRATION.

There remains to be said a few words concerning the Government administration of the Commander Islands.

[1] Figures thus obtained do not pretend to any accuracy. How misleading the process may be is clearly illustrated in the table presented by the British Bering Sea Commissioners (Rep., p. 132) and the explanation concerning the sources of information. They utilize the total given by Bancroft for 1842–1861, viz, 338,600 (the identical figures utilized above), and from this deduct the number of skins taken from 1842 to 1860, according to a different source, thus obtaining the number taken in 1861. Correcting an apparent error in the subtractor, the number for 1861 would be 19,699. October 14, 1861, the chief manager of the colonies, Furuhielm, writes home to the board of administration that "in the course of this year 47,940 seal skins have been taken from the islands of St. Paul and St. George;" 19,699 calculated, but 47,940 taken. This is a sad commentary upon the probable accuracy of the calculated figures.

Before the establishment of the Russian-American Company the islands were scarcely under any territorial jurisdiction, though in reality they were undoubtedly subject to the rule of the "commander" of Kamchatka, a naval officer residing in Petropaulski. With the advent of the Russian-American Company the direct control of these islands went out of the hands of the Russian Government, but it seems that the company took but slight interest in them until 1826, in which year they were incorporated into the Atkha district, with headquarters on Atkha Island. After the permanent location of a colony, a Russian "overseer" was stationed on Bering Island.

When, in 1868, the Russian-American Company's régime was at an end, the islands returned to the jurisdiction of the "ispravnik" in Petropaulski, while the remainder of the Atkha district became part of the United States by the cession of Alaska to the latter. Kamchatka being, since 1855, only a district of the so-called Coast Province (Primorskaya Oblast), the administration of the islands consequently rested with the governor at Khabarovka, subject to the authority of the governor-general of Eastern Siberia at Irkutsk.

Thus things remained until the growing importance of the seal business during the lease to Hutchinson, Kohl, Philippeus & Co. made it desirable to locate a higher official on the islands to represent the Government in its dealings with the company on the islands and to govern the natives. Mr. Nikolai Aleksandrovich Grebnitski was selected as the first "administrator," landing on Bering Island on August 21, 1877, and has continued as such up to the present time. His long retention in office, coupled with the fact that his salary has been raised repeatedly, that he has gradually risen in rank, until he now holds that of a colonel, and that he has been decorated several times, is ample proof that he has conducted the affairs of the Commander Islands to the full satisfaction of his Government.

As subordinates, two kossaks from Kamchatka were stationed, one on each island. Since 1890, however, another civil officer has been located on Copper Island, acting as Mr. Grebnitski's assistant there. Until last year, when he had to seek a milder climate on account of broken health, this position was held by Mr. Nikolai Matveyevich Tielmann. His successor was on his way to the islands in the fall of 1895, on the bark *Bering*, but on account of the weather failed to make a landing and had to return to Vladivostok.

One of the first things attempted by Mr. Grebnitski, after putting the community affairs of the natives into shape, was to regulate the fur-seal business, i. e., the administrative portion of it as it related to the taking of seals on the rookeries, and the rules first framed were embodied in an order (prikaz) dated April 28, 1878 (o. s.), and the second chapter of a regulation (predpisanie) of the following May 1 (o. s.).

In the latter a form was provided which, when filled out and signed by the overseer and native chief, is returned to the office of the administrator. Printed blanks are now furnished, and to illustrate this useful document a sample is herewith appended, as follows:

AKT.

Rookery at *Glinka, Copper Island.*
Killed in drive *June 6, 1881:*
1,053 pieces fur-seal bachelors.
2 females.
0 bulls.

Total.. *1,055* pieces.
Not accepted by the company for the following reasons:
(1) tooth-marked ..... *3* pieces.
(2) cut *0*
(3) undersized *2*

Total not accepted ..... *5* pieces.
Of these, the 3 tooth-marked skins were returned to the natives, the 2 undersized ones were salted.
Accepted by the company, *1,050* pieces.
Overseer, Copper Island ..... *Sergeant Selivanof* (signed).
Chief, Copper Island ..... *Anastas Kadin* (signed).
The receipt given by the agent is appended as a separate inclosure.

Gradually a set of elaborate regulations have been framed which govern the rookery business. Such as differ from those in vogue on the Pribilof Islands are here quoted from Lieut. Commander Z. L. Tanner's report for 1892 (Rept. U. S. Fish Com., 1892, p. 40), as follows:

None but natives are allowed to work on the rookeries.

A fine of 100 golden rubles is imposed by the Government upon anyone who kills a female fur seal, and 10 rubles for killing a pup, and such additional fine shall be paid as shall be imposed by the natives themselves.

No person, native or otherwise, is allowed to wear boots with nails in them on the rookeries; rubber boots or tarbasi[1] must be used.

Chewing or smoking tobacco, expectorating, or attending to the requirements of nature are strictly prohibited on the rookeries.

Knives may be carried, but a stick with a metal ferrule is not permitted.

No small boys or females are allowed on the rookeries, and dogs must be left half a mile from the rookeries during the breeding season.

Owing to the repeated raids on the rookeries, particularly those on Copper Island in the early eighties, by marauding schooners, which the natives in several cases had to drive off by means of powder and ball, an experiment was decided upon to station regular soldiers on the islands in order to protect them. In June, 1884, the Russian cruiser *Razboinik* brought one officer and twenty-three men for Copper Island and nine men for Bering Island. Five soldiers were stationed at the South Rookery of the latter island, where they did good service in driving off the schooner *Sakhalien* and capturing one of the crew. In a few years, however, the soldiers were withdrawn, and instead the watch force of the natives was organized in a military manner, one Kamchatkan kossak on each island and two conscript soldiers of the regulars, serving their time acting as officers, under the immediate command of the administrator and his assistant. Watchhouses are erected overlooking the rookeries, and the guards provided with good spyglasses and rapid-firing army rifles. Stands of arms and plenty of ammunition are kept in the Government building at the settlements.

The central authorities maintain the supervision of the local administration by occasionally sending out an inspector, or "revisor," as he is called. His duty is to ascertain the state of affairs generally, as well

[1] Native seal-skin moccasins.

as the condition of the natives, to receive any complaints of the latter, and investigate their grievances.

A change has of late years been effected in the higher administration of the islands, inasmuch as they have been transferred from the Department of the Interior to the Department of the Imperial Domains, without prejudice, however, to the territorial jurisdiction of the governor-general of the Amur Provinces. The administrative status of the Commander Islands is therefore now exactly parallel to that of the Pribilof Islands in their double relation to the United States Treasury and the governor of the Territory of Alaska.

CONDITION OF THE COMMANDER ISLANDS ROOKERIES.

PRELIMINARY REMARKS.

When, in 1882, Prof. S. F. Baird sent me to the Commander Islands to study their natural history, he also impressed upon me the desirability of obtaining some information in regard to the fur seal and the sealing industry of the islands. Owing to my hurried departure—I had only forty-eight hours in which to prepare for the expedition destined to stay two years in the field—I failed to take a photographic outfit with me. In default of photographs, however, I made numerous sketches of the rookeries, and also undertook to construct maps of them by means of an azimuth compass and a pediometer. I submit some of the sketches with this report in exact facsimile of the originals; they have not been touched up in any manner (pls. 20, 41, 42, 43). For that reason they appear extremely crude, but it is thought that they will be accepted with more confidence in their present shape and carry with them more conviction than if they had been fixed up or "improved" in any way.

The only photographs of the rookeries in their palmy days were taken by the Russian Colonel Voloshinof, but with only a few exceptions they are not intended to portray the totality of seal life on the individual rookeries, and for that reason offer but scant material for comparison with my sketches of 1882–83, or my photographs of 1895, the more so since the points of view in all instances except one are different from mine. However, those that can be utilized in this connection I have reproduced.

When photographing the rookeries last summer, I made a special effort to obtain views from the identical points from which I had made my sketches in 1882 and 1883. Taking into account the different focus of the eye and the photographic lens, I think a comparison between the sketches and the photographs will establish the general accuracy and truthfulness of the former.

When studying the rookeries in 1882–83, I did it with H. W. Elliott's Monograph of the Pribilof group in my hands. In the main I found that his observations in regard to seal life were applicable to the Commander Islands seals, and at the same time that the conditions of the sealing industry were also nearly the same on the two groups, so far as could be judged from descriptions alone. There were minor points in which I found, or thought I found, differences, but in the main I agreed, with one notable exception, however, viz, the estimation of the number of seals on the rookeries. Of course his estimate related only to the Pribilof group, and, as I knew the latter only from his description, I felt bound not to criticise him. But I became sure of this: His methods and results did not apply to the Commander Islands. Elliott's method was to ascertain the area of the rookeries in square feet and then multiply this with an average figure calculated from the number of seals,

large and small, counted on a certain piece of ground. But I found insurmountable obstacles. In the first place, the method required not only a very detailed and accurate topographical survey, on a large scale, of each rookery, but the calculation of the area presented an exceedingly difficult problem. No two pieces of ground are alike. In some the beach is smooth and the seals are lying close; others are covered with smaller or larger rocks and stones, where the seals lie scattered as a matter of necessity. In other places, again, there are open spaces or thin spaces. Then, again, the outlying rocks and reefs defy close calculation as to number and area. On Copper Island small herds of seals would be found in corners and coves, on ledges of cliffs, and under overhanging rocks, sometimes entirely out of sight and most times beyond computation. I found that every factor of the calculation would have to be estimated averages, and that these averages in their turn had to be founded upon estimated items; in short, that the whole calculation would have to be a product of guesses multiplied by guesses. As we have to deal with large figures, it is evident that a mistake in the estimated factors must result in disastrously great mistakes in the total number.

Suppose, for instance, that I had "estimated" the area covered by the seals on both islands to be 4,000,000 square feet. If I "estimated" the average ground covered by a seal (mother, pup, and bachelor) on the rookeries to be 2 square feet, I would obtain a total of 2,000,000 seals on the Commander Islands. But, on the other hand, if I guessed that on the average a seal, large and small, on the rookery occupies 5 square feet—and this would possibly have been more nearly correct—I would get only a total of 800,000 seals, large and small. According to this method, various persons might estimate the number of seals on North Rookery, Bering Island, from 20,000 to 120,000, and yet it might be impossible to convince any of them that they were mistaken.

A numeration of the seals being utterly valueless unless accurate, or at least approximately accurate, I naturally regarded such an estimate of the number of seals on the rookeries not only as useless, but as downright pernicious. Actual counting being impracticable, and an individual judgment of the number being about as valueless as the above method of calculation, unless acquired by a very long practice, I gave up all attempts at presenting figures.

When, after twelve years, I again visited these rookeries the same question confronted me. In one place, where I had an unusually good opportunity, I tried to make an estimate of the average area occupied by a seal on that particular rookery. On July 16, watching the seals before me on Kishotchnaya Rookery, Bering Island, I wrote in my notebook as follows:

> Here is a harem right in front of me, 1 sikatch, 16 matki, and about as many pups. They are lying as close together as about the average, and they easily cover a piece of ground 20 by 20 feet, 400 square feet, or more than 11 square feet per animal, pups and all. Ten square feet per animal for this rookery is, therefore, I think, a fair estimate.

But when I came back to the North Rookery and tried to apply my estimate I was entirely at sea. I could not make up my mind whether the seals on the average were lying as close as above, or closer. Of course, I could see places where they were thicker, and others where they were thinner, but I could not, to my own satisfaction, strike an average, if for no other reason, because there were great portions of the rookery of which I could get no general view. Under those circumstances I would have regarded it as the merest humbug to present

any figures pretending that they meant anything. Consequently I wasted no further time upon getting at the probable number of seals on the Commander Islands rookeries.

The only method which promises reliable results is the one adopted now on the Pribilof Islands by the experts of the United States Fish Commission, viz, to actually count the number of seals on several large tracts of rookery, each of the size of an acre or more. In this way an average per acre may be obtained, which, multiplied by the computed acreage of all the rookeries, will give an approximate number which may not be too far out of the way. But, unfortunately, this method is hardly applicable to the Commander Islands for various reasons, chief of which is the impossibility of making an actual count over a sufficiently large area to insure a reliable average. The rookeries are so very different among themselves that it would be necessary to have a separate count of each of them.

Comparison Between the Condition of the Rookeries in 1882–83 and 1895.

Bering Island.

North Rookery, 1882–83. (Plate 7.)

When I first visited the northern rookery, thirteen years ago, there were three distinct breeding areas, viz, the Reef and Sivutchi Kamen, counted as one; a smaller patch between Babin and the creek, and Kishotchnaya. The bachelors hauled out on many of the outlying rocks surrounding the reef, and also in the rear of it on the smooth, white parade ground. A large patch of them occupied the space back of the breeding ground at Babin, large numbers extending a considerable distance back on the grassy area later in the season. Between the creek and Kishotchnaya there were three patches of bachelors. The whole distance from Sivutchi Kamen to Blizhni Mys, therefore, was practically one continuous seal ground. The breeding grounds at Kishotchnaya were surrounded by a heavy fringe of bachelors, who also sported in great numbers on the smooth, gravelly space in the rear of the rookery. South of Kishotchnaya, between the latter and Maroshnik, were again two separate patches of bachelors. In 1883 for the first time bachelors were known to haul out regularly throughout the season on the beach called Kisikof, beyond Maroshnik. They used to haul out there—and even as far south as Fontanka—late in the season, but their permanent settling on the beach in question was then regarded as an indisputable proof that the rookeries were increasing. It was at this last-mentioned point that the *Otome*, an English schooner with a Japanese crew, made a raid during a dark night in August, 1883, and killed 300 to 400 seals. The mate was captured by the natives and the schooner the next morning by Mr. Grebnitski, on board the steamer *Aleksander II.*

The rookeries were in excellent condition, both as to quantity and quality. All classes of seals were well represented, and only skins of standard size were taken. This was particularly the case in 1883, when the company's representatives had very strict orders not to accept a single skin under 8 pounds. During that year 50 per cent more skins could easily have been taken, but for business reasons the company wished to reduce the catch as much as possible, and it was only after some strong pressure was brought upon Captain Sandman by Mr. Grebnitski that he agreed to take as many as he did.

It is a fact well worth mentioning that even in those days females and pups got unavoidably mixed up in the drives. The percentage was

not very great, but great enough to be a distinct feature of the drives on this island. However, as the drive progressed they were pretty successfully weeded out, and comparatively few reached the killing grounds. Killable seals being plentiful, pods of females were allowed to escape along the route of the drive, even though they might include a few bachelors.

NORTH ROOKERY, 1895. (Plate 8.)

Upon inspecting the North Rookery again last summer, I found a great change in many respects. Before reaching the rookery itself the absence of fresh or decaying carcasses on the killing grounds was in marked contrast to the noisome sight and smell which used to form the first impression of the visitor arriving at the village. Nowadays every carcass is utilized. The choice parts of the meat are salted down in the many boxes and barrels dotting the ground in the rear of the killing grounds, while the rest, including the entrails, are put in holes in the ground for winter food for the sledge dogs.

On the rookery itself the first change which struck me was the fact that the entire beach between Babin and Kishotchnaya was depleted of seals—not a single breeding seal between Babin and the creek, nor a bachelor—all the way to Kishotchnaya. Later on I found that the hauling grounds south of the latter place were also deserted. Instead of the imposing series of breeding and hauling grounds from Sivutchi Kamen to Kisikof, I found only two patches of breeding grounds, now forming almost two distinct rookeries—the Reef and Kishotchnaya.

I was prepared for a diminution of the seals, and it caused me, consequently, no surprise. On the other hand, I was considerably surprised at finding (July 8–10 and July 15–20) the breeding grounds of the Reef outlined very much as I had seen them in 1883.[1] The bulk of the harems were located on the western side of the Reef, rounding the point of the "sands" and extending in a long, narrow horn south along the eastern edge of the latter. A narrow band obliquely across the "sands" formed a connection and separated off an oval bald spot of the white ground toward the northern extremity of the "sands." It is a noteworthy fact that this "bald spot" was an equally characteristic feature of the rookery in 1883 as in 1895. But what I did miss was another connecting band, viz, between the southeastern extremity of the breeding seals toward the one alluded to above. While thus the distribution on the whole was the same as formerly, there was a perceptible shrinkage in the width of the areas covered by the seals, and it seems to me also in the density of the seals, though of this I can not be so sure. The rookery is looked at so much from the side that it is very difficult to judge correctly of the space between the seals.

To show the changes from 1882 to 1895, I submit some illustrations and two maps, which need some words of explanation.[2]

The drawing submitted (pl. 20) is taken from a photograph of a

[1] When I first saw the rookery, on July 4, it had not quite filled out yet, and I thought the depletion very great, indeed; there was then no sign of the oblique belt across the sands, and the seals at the southeast corner formed a small, isolated herd.

[2] Dr. Slunin in his recent report (Promysl. Bog. Kam. Sakh. Komand. Ostr.) has been singularly unfortunate in misunderstanding an old map by Mr. Grebnitski with regard to the extent of the rookeries on Bering Island. In the legend on plate 7 the dotted areas are represented as being the "rookeries according to Grebnitski." I have the original map, the so-called "Sandman-Grebnitski" map, before me, and can assert positively that Grebnitski never meant to represent the rookeries by the dotted areas, which are nothing else but the reefs surrounding the island. Of course Grebnitski did not intend to convey the idea that more than 60 miles, or half the entire coast line of Bering Island, were occupied by the rookeries.

pencil sketch made by me July 30, 1882. Mr. Grebnitski, in going to St. Petersburg in the autumn of 1882, was anxious to have it accompany his report, and upon his arrival at San Francisco had a photographic copy made, which he sent me, and which is here reproduced. Like most drawings, the vertical dimensions are exaggerated, but on the whole it gives a fairly accurate representation of the rookery. The inner edge of the breeding grounds are obscured by an immense number of bachelors on the "parade" or "sands," but the sketch shows pretty conclusively that the salient features are yet maintained. The photograph by Voloshinof (pl. 27*a*), taken in 1885, unfortunately is not very clear, but there is enough in it to show that the breeding area, so far as it can be seen from the direction of the salt-house, has shrunk comparatively little. My photographs (pl. 21) were taken from practically the same standpoint as the sketch and Voloshinof's photograph, and they afford as good a comparison as can be expected from photographs taken at such a distance. Those taken from a somewhat different standpoint, viz, from the driveway (pl. 22), give perhaps a better idea of the rookery, small as they are.

The map representing the seal grounds in 1883 (pl. 7) was sketched on August 21, and shows the distribution of the seals on that date, hence the lack of definiteness to the areas of red and the extension of the bachelor seals into the grass-covered area. The map showing the location of the seals in 1895 (pl. 8), however, represents the seals as they were located July 17 and 19.

At Kishotchnaya I found the same state of affairs as on the Reef, only that the patch had shrunk still more and the seals apparently covered the ground less densely than on the Reef. This last observation, however, is not to be relied upon, as the breeding ground can be looked down upon from a much greater elevation (70 feet), though at a greater distance. Bachelor seals in small numbers hauled out on the outer rocks and in among the females in the rear of the rookery, but the center of the "parade" ground was deserted all summer, and never a seal entered the posterior third of the latter, now covered with a scanty growth of tufted grass.

It was at once apparent that there was a low percentage of bulls on both rookeries, though at the Reef I afterwards found that the condition was not quite so bad as I first was led to believe. Upon my third visit to the rookery, when the wind was favorable for approaching it from the west side, I discovered that there were a good many more bulls proportionately to the females on that side than on the eastern half, which is the one first reached and most commonly seen. The formation of the ground made it utterly impossible to make a reliable estimate of the average number of females to each bull by counting a sufficient number of harems. At Kishotchnaya, however, the opportunities were more favorable, and on July 16 I averaged at the south end of that rookery about 50 females to a bull, while at the northern end the harems appeared smaller, most of those counted containing 15 to 25 females. A great many females were in the water that day, however, so in all probability the whole rookery averaged no less than 40 females to the bull. This proportion did not seem to be the result of or to have caused any lack of vigor in the males, for there was quite a number of large half-bulls skirting the rookery or hauled out on the outlying rocks, looking longingly toward the breeding grounds.

The greater falling off in this rookery was due to the decrease in the number of bachelors. But instead of affecting all classes this diminu-

tion was chiefly confined to the younger ones. Last summer all the skins were weighed individually on a spring balance as the killing went on, and an accurate tally kept. I submit below a table of weights of the skins taken in 13 drives between July 14 and September 13, 1895. From this it will be seen that no single skin under 7 pounds was taken, and of this weight only 235 skins; that in 4 drives not a skin under 8 pounds occurred; that in none of the drives was the average weight less than 9.7 pounds; that of 6,725 skins, 5,558 weighed 9 pounds and over, and that the average weight of these 6,725 skins was 10.3 pounds. This table is also very interesting, showing how uniform was the size of the animals driven during the whole period of two months. Its true significance, however, can only be appreciated when it is remembered that the rookeries were scraped absolutely clean, and that not a seal was allowed to escape that would have yielded an acceptable skin. It can be stated with almost absolute certainty that there was not a bachelor seal in North Rookery, Bering Island, of the class yielding 6-pound skins.

Weight of skins taken in 13 drives on North Rookery, Bering Island, 1895.

Date.	7 pounds.	8 pounds.	9 pounds.	10 pounds.	11 pounds.	12 pounds.	13 pounds.	14 pounds.	15 pounds.	Total.	Average.
1895.										*No.*	*Pounds.*
July 14	5	90	74	61	48	53	11	4	2	348	9.8
19	4	70	90	237	75	60	8	1	0	545	10
29	0	53	110	138	211	161	50	10	0	733	10.7
Aug. 2	0	42	54	140	150	140	90	0	0	616	10.9
4	9	35	40	27	31	50	20	5	0	217	10.3
6	0	56	107	194	241	114	103	60	0	875	10.9
8	0	10	30	60	48	11	20	10	0	189	10.6
12	25	100	100	80	90	36	40	61	0	532	10.3
22	4	85	139	215	203	179	28	52	0	905	10.6
24	15	40	35	28	46	38	14	16	0	232	10.4
31	104	211	171	62	103	120	100	9	0	880	9.7
Sept. 10	50	93	80	66	85	40	35	10	0	459	9.5
13	19	47	34	20	29	16	17	12	0	194	9.8
Total	235	932	1,064	1,328	1,360	1,018	536	250	2	6,725	10.3

Though not literally absent, the yearlings were practically so. From the next table, which shows the number of each class of seals contained in the same 13 drives, it will be seen that out of 29,112 seals driven to the killing grounds only 540 were yearlings, or 1.86 per cent. It was a constant source of wonder on Bering Island, in 1895, what had become of the yearlings. From time to time it was confidently predicted that they would turn up "later," but they did not come at all. There was a slight proportionate increase after the middle of August, but too trifling to amount to anything. And again I must emphasize the fact that the rookery was scraped clean in search of seals. This fact is startlingly disclosed by the following table, and because of its great importance it requires a full explanation.

Details of 13 drives on North Rookery, Bering Island, 1895, showing sex and age of seals driven.

Date.	Killed.	Escaping.				Total driven.	Remarks.
		Females.	Yearlings.	Pups.	Bulls.		
1895.							
July 14	348	1,305	0	13	11	1,677	
19	545	1,090	11	69	9	1,724	
29	733	1,738	23	35	13	2,542	
Aug. 2	616	1,436	14	67	8	2,141	
4	217	779	9	35	7	1,047	
6	875	2,014	5	159	11	3,064	
8	189	1,134	5	63	4	1,395	
12	532	2,077	74	104	5	2,792	
22	905	2,928	173	295	8	4,309	
24	232	1,265	56	51	4	1,608	
31	880	2,259	55	108	5	3,307	
Sept. 10	459	1,718	38	69	8	2,292	14 stagey.
13	194	825	77	115	3	1,214	51 stagey.
Total	6,725	20,568	540	1,183	96	29,112	
Percentage of total driven	23.10	70.65	1.86	4.06	0.33	100.00	

Upon my arrival, in 1895, I impressed upon Mr. Grebnitski the desirability of having such a census prepared, and suggested that Selivanof, the kossak in charge of the rookery, be ordered to undertake the work. Mr. Grebnitski, fully aware of the great importance of knowing exactly what classes were represented in each drive, at once took up the suggestion and ordered Selivanof to make a detailed tally of each drive according to the scheme I furnished. The drive on July 19 I counted myself conjointly with Selivanof, and the tally sheet is here produced to show how the work was done and how much reliability can be placed upon it. The seals killed and those escaping from each pod, as it was culled and slaughtered, were separately counted, Feoktist Ivanof Korsakovski counting the dead ones, Selivanof and I those allowed to escape.

Tally of drive taken July 19, 1895, North Rookery, Bering Island.

Pod number.	Killed.	Escaping.				Pod number.	Killed.	Escaping.			
		Females.	Yearlings.	Pups.	Bulls.			Females.	Yearlings.	Pups.	Bulls.
1	8	15	2	.....	.....	22	20	21	1	4	.....
2	9	35	.....	.....	.....	23	10	30	1	1	.....
3	7	38	.....	1	.....	24	26	10	1	2	.....
4	13	28	.....	.....	.....	25	11	21	.....	.....	.....
5	16	34	1	2	.....	26	12	19	.....	.....	1
6	11	32	.....	.....	.....	27	18	23	.....	2	2
7	18	22	.....	.....	.....	28	23	16	.....	9	.....
8	11	28	1	.....	.....	29	28	43	.....	6	.....
9	7	33	.....	2	.....	30	12	35	.....	3	.....
10	9	25	1	.....	.....	31	22	42	.....	1	.....
11	12	9	1	4	.....	32	20	51	.....	9	.....
12	11	26	.....	.....	.....	33	11	12	.....	.....	.....
13	6	20	.....	.....	.....	34	7	21	.....	1	.....
14	9	26	.....	1	.....	35	15	40	.....	6	1
15	21	28	.....	4	.....	36	12	25	.....	2	.....
16	8	34	.....	.....	.....	37	10	23	.....	2	.....
17	16	31	.....	1	1	38	11	35	.....	2	.....
18	9	28	.....	.....	.....	39	30	51	.....	1	2
19	13	35	.....	.....	2						
20	20	27	2	3	.....	Total	538	1,090	11	69	9
21	11	28	.....	.....	.....						

The accuracy of the above tally is attested by the fact that the number of skins taken in this drive was 545. Sometimes the killed ones of the previous pod were lying so close to those being counted that it was difficult to ascertain the exact number, in which case the smaller figure was noted. And so with the escaping ones. Selivanof and I counted separately; if we differed, and a recount was not practicable, we took the lowest figure. The percentages are, therefore, very nearly correct. If there is any error, it is in understating the number of females, but I am sure that the possible error does not exceed 1 per cent.

The figures of the 13 drives in the table previously given were ascertained in the same manner, and I have no doubt that they are essentially correct. No tally was kept previous to the drive on July 14, and I failed to obtain the details of the drive on July 24, but there is no reason to believe that the percentage of the classes was different in these drives, except that I was informed that there were no females or pups in the first drive, June 13. In order to complete the record of this rookery for 1895, I submit the following table of the skins taken in each drive during the summer season:

Total number of skins taken on North Rookery, Bering Island, during the summer season of 1895.

Date of drive.	Skins.	Date of drive.	Skins.	Date of drive.	Skins.
June 13	110	August 2	616	August 31	889
June 25	187	August 4	217	September 10	459
July 6	262	August 6	875	September 13	194
July 14	348	August 8	189		
July 19	545	August 12	532	Total	8,341
July 24	1,057	August 22	905		
July 29	733	August 24	232		

Looking again at the table of the classes in the 13 drives, we note that it was necessary to drive off over 29,000 seals in order to obtain 6,725 skins, and that of those 29,000 no less than 20,568 were females. As already stated, there is no reason to suppose that the percentage of females differed materially in the other 4 drives, except one. If, therefore, we calculate the corresponding figures for a total of 8,231 (8,341—110) skins, we find that in order to obtain 8,341 skins, the total catch for the season, it was necessary to drive off to the killing grounds 35,741 seals, of all ages, of which the astounding number of 25,174 were females. In this count are not included such females as were allowed to escape along the road of the drive, although the number of females thus culled was comparatively few, as the men were afraid of letting a single killable bachelor escape.

Nothing could better illustrate the straits to which this rookery has come. On the other hand, nothing could better demonstrate how little the driving disturbs the seals. Here is a rookery where the females have been driven probably as long as seals have been taken, though not in the same proportion as now. Yet, the females return to be driven over and over again, and the breeding ground is the part of the rookery least affected in the general decrease.

A great amount of mortality due to starvation was observed among the pups, but is here only alluded to, as I have treated of that question in another connection.

South Rookery, 1882. (Plate 9.)

This rookery, although probably the remnant of the innumerable multitudes which Steller speaks of, has not been of much account of

recent years. After the interregnum, 1869–1871, it was so insignificant that no regular catch seems to have been made until 1880, although occasionally, i. e., before and after the season closed on North Rookery, a few seals were killed at Poludionnoye in order to get fresh meat for the main village, Nikolski. Thus, in 1878, 50 were killed in June and 30 on November 5.

The result was that the rookery was gradually increasing. Finally, in 1880, it was deemed sufficiently large to station a small force of men under Mr. Volokitin at the place, and in that year 787 skins were taken. It seems, however, that the capacity of the rookery was underestimated and not enough salt was landed, so that no more could be taken care of. In 1881, in spite of the complaint that although there are "many sikatchi on both rookeries" there are "but few holustiaki, mostly in the water," the South Rookery yielded 1,150 skins. The following year (1882) the catch was 1,410.

When I visited this rookery on August 21, 1882, I found the entire beach between the first and second cape, west of the waterfall, covered with seals, the breeding seals occupying the portion nearest to the water, the bachelors patches at both ends and in the rear up to the inner grass-covered belt.

SOUTH ROOKERY, 1895. (Plate 10.)

How different when I approached the same ground again August 17, 1895, thirteen years later almost to the date. Only a handful of female seals were left at the extreme western end of the rookery.

I am very fortunate in being able to present copies of two photographs taken by the late Colonel Voloshinof in 1885, which, as they are taken from almost the same standpoint as one of my own (pl. 29), afford excellent comparison between the conditions of Poludionnoye Rookery then and now. In the right-side half of his double picture (pl. 31*a*) a series of smaller rocks in the water extends from the beach to the outer end of the west reef. This series of rocks will be recognized toward the lower left-hand corner in my photograph (pl. 29), and will serve to orient the reader. It will then be seen that the entire beach, which in my picture of 1895 is absolutely bare of seals, is covered with thousands in Voloshinof's picture of 1885, and that the compact body of the seals then extended even a good distance beyond. To complete the comparison I add another photograph of mine (pl. 28), looking in the opposite direction (toward the waterfall), which shows the utter desolation of the entire beach beyond the little black patch.

As for the proportions of the various classes of seals on this rookery, I found the conditions to be similar to those on the North Rookery. It was reported in Nikolski that there had been only one bull on the rookery in 1895, but upon inquiry at the rookery I was informed by Nikanor Grigorief, the native in charge, that the actual number of sikatchi had been five. This number may be considered exact, and the number of females to each bull was therefore probably nearly 100. There were plenty of pups when I visited the rookery, and no barrenness of the females was suggested.

By dint of hard scraping no less than 564 skins were secured in 1895, 159 of them, however, between August 17 and September 9.

COPPER ISLAND.

KARABELNOYE ROOKERY, 1882–83. (Plate 11.)

The distribution of seals on this rookery, as I found it during the week July 3–10, 1883, is shown on the map (pl. 11). Every available

space under the cliffs was occupied by breeding females. Even the ledges at the foot of them and the lower portion of the steep ravines were full of them. The bachelors were obliged to be satisfied with the outlying reefs and rocks, with the beach on the east side of Karabelni Stolp, and the rocky beaches at Vodopad and beyond. The rookery was in excellent condition, all classes of seals being well represented. In fact, there was unquestionable proof that the rookery was increasing.

Curiously enough this fact was brought home to the natives located at Karabelni by the circumstance that they were unable to obtain in good season the number of skins required from this rookery. When I arrived at Karabelni in the beginning of July the natives were deeply concerned because of their failure to obtain the last 1,000 skins. As the families are paid for each skin brought to the salt house this meant a serious loss to those stationed at this point. They finally decided to go to Glinka, where the season was already over, and there got all the skins they wanted. In answer to my inquiry as to the cause of their failure to obtain the skins at Karabelni, I was told that it was because the rookery was increasing. Self-contradictory as this statement appeared, it was nevertheless easily explained. The main hauling ground of the bachelors, i. e., the one yielding most skins and from which the seals could be driven, was the Karabelni Stolp. Looking at the map (pl. 11), it will be seen that at the base of the neck there was a large breeding ground. The breeding seals were increasing here to such an extent as to occupy the whole space along the beach, and actually shutting off the hauling ground, thus making it impossible to drive any seals from that place. The men were therefore obliged to take the skins at Vodopad and Krepkaya Pad, which meant that they had to carry every skin on their backs across the island. When it is considered that the population, even under ordinary circumstances, was rather insufficient for the work, it may easily be understood what a hardship this increase of the rookery involved. Not only were the breeding seals increasing, but the bachelors were also extending their territory. The result was that skins were taken in Malinka Bukhta for the first time. At this place the women did the skinning and carrying, for even here the skins had to be carried, while the men were engaged at Krepkaya Pad.

In addition to the map I have submitted three original field sketches of the rookery as I found it on July 3, 1883 (pls. 41–43). While making no claim for artistic merit, I do claim for them sufficient accuracy for an intelligent comparison with my photographs of 1895, which were taken from the identical standpoints. The sketches have not been touched since I left the rookery in 1883, and are here reproduced in facsimile so as to eliminate the possibility of even unintentional alterations.

KARABELNOYE ROOKERY, 1895. (Plate 12.)

On July 31, 1895, Mr. Grebnitski and I landed in Stolbovaya Bukhta and pitched our tent on the beach just west of the killing ground. It was very foggy and the water high, so that we could not pass the point into Martishina Bukhta. Next morning, at 4.30, the fog still prevailed, but the water was low and we made our way along the beach to the rookery. We passed on to the Stolp without meeting a seal, where in 1883 thousands of breeding seals blocked the way of the drives. Only a small solid patch leaning on the south base of the cliff remained—an isolated outpost at this end of the rookery. At the Stolp itself we found a couple of small harems only at the northern end, and toward the southern extremity a small patch of bachelors—hardly more than a

dozen. In the distance I could discern through the fog faint outlines only of the breeding grounds.

After breakfast the fog lifted and I ascended the bluffs, which rise 300 feet above the breeding grounds. The photographs which are herewith appended (pls. 38–40) were taken from the various stations at the edge of these bluffs marked on the maps, care being taken to select the same points from which I had made my sketches twelve years previously.

I found that while on the whole the breeding grounds had retained their former shape—necessarily, because of the natural conditions of the beach—there was a great thinning out of the ranks of the females. At the same time a large area at the northwestern end had become nearly depopulated. At first I credited the thinness of the breeding herds to the bright weather, but another visit to the heights the next morning showed no improvement.

That day I saw no bachelors, except the little patch at the Stolp; none at Vodopad and Krepkaya Pad. At Malinka Bukhta, I was informed, they had ceased to haul up several years ago. The next day we saw a few more bachelors—a somewhat larger patch—at the Stolp, and two other patches, of possibly a hundred seals each, one on each side of the Vodopadski Nepropusk.

But one feature that struck me with surprise was the great number of bulls and half bulls. This abundance of old males was particularly interesting, coming, as I did, directly from Bering Island, where this element was so scarce.

Pups were present in good proportion.

The decrease in the yield of this rookery has been considerable. While as far back as 1881 6,500 skins were secured without trouble, it was impossible for the men in 1895, try as hard as they might, to secure more than 2,000. They were given full swing and encouraged to take as many as possible, though they needed no special encouragement, for the decrease in skins meant a corresponding decrease in food and comfort during the following winter. Moreover, the season was extended to the first week of September, and yet with no better results. Between August 12 and September 10 they could scrape together only 188 skins.

GLINKA ROOKERIES, 1882–83. (Plate 13.)

The capacity of Glinka used to be more than double that of Karabelni, having in good years yielded over 20,000 skins. The best hauling grounds were Palata, Zapadni, and Pestshanaya, but batchelors then hauled out as far as Babinskaya Bukhta in the south and Gorelaya Bukhta in the north. These distant grounds were only drawn upon occasionally, and the grounds between Urili Kamen and Palata Mys furnished the bulk of the skins. Of these Pestshani hauling ground was the most prolific and the handiest, although the driving was very severe before the new salt house was built, and single drives yielding more than 4,000 skins from this place were no exceptions.[1]

The principal breeding grounds occupied the inaccessible beach between the Stolbi in Gavarushkaya Bukhta to Palata Mys, comprising Sikatchinskaya and Zapalata, the gully and basin north of Palata, and, finally, the family grounds designated as Zapadni or Zapadni Mys.

[1] Dr. Slunin reports that in 1887 a drive yielding 6,000 took place from this hauling ground.

Palata, to the looker-on coming over the mountains, was probably the most impressive rookery view in the whole Commander Islands group. The solid blackening masses of breeding seals, filling the gully to overflowing and extending under the bluffs and along the beach on both sides, was a sight never to be forgotten. My original sketch, made in 1883 from a prominent point 800 feet above, is unfortunately lost or mislaid, and I am therefore obliged to substitute an elaboration of it (pl. 52) made shortly after my return, probably in January or February, 1884. I know it to be a pretty faithful rendering of the sketch, but of course the latter would have been more authentic.

Zapalata and Sikatchinskaya were the mainstay of the rookery, however. There the breeding seals were absolutely safe against all possible interruptions from the land side, while the bays themselves are wonderfully sheltered by reefs and outlying rocks, thus affording admirable places of safety for the growing pups, features which will be fully appreciated by an inspection of plates 55 and 56.

To illustrate the condition of these rookeries during the palmy days of the business I am fortunate enough to be able to copy a couple of Voloshinof's photographs (pls. 53 and 57a) made in 1885, to which I shall refer more in detail later on.

GLINKA ROOKERIES, 1895. (Plate 14.)

On the 2d of August I approached the Glinka rookeries in a boat from the north and proceeded along their entire front from Lebiazhi Mys to Babinskaya Bukhta, where we camped. I saw breeding seals in most of the places where I formerly saw them, but in vastly reduced numbers. Bachelors were also seen, but they were few and far between. At Pestshani hauling ground, the place which once supplied many thousands, and which even as late as 1893 furnished 3,137 skins, there was not a single bachelor. True, a drive had been made from that place only a few days earlier, which had resulted in 700 skins, but these 700 skins were all that this famous hauling ground yielded in 1895.

However, the location of nearly all the former hauling grounds was marked, not so much by little bunches of a dozen bachelors or so, but, curiously enough, by a line of black half bulls. They had hauled up and occupied the beaches with regular intervals, much as do the old bulls in spring before the arrival of the females; in fact, they were in a measure playing sikatch. These lonesome, patiently waiting polusikatchi were first seen at the old hauling grounds on both sides of Lebiazhi Mys, and then on the west side of Peresheyek and of Pestshani Mys, and finally at the eastern end of Babinskaya Bukhta. At these places they had hauled out by themselves. But, in addition, hundreds of these nearly mature young bulls (or probably mature, though not strong enough to fight the older ones) skirted the breeding grounds, hauling out on outlying rocks and paying attention to the females coming out for a swim or a trip to the distant feeding grounds. On the breeding grounds dark-haired, vigorous-looking bulls abounded.

This superabundance of vigorous, mature males was a strongly marked feature of the rookery. This is the more remarkable if we remember that it was already late in the season when I visited Glinka and that, although I stayed until August 11, I saw no diminution of it. The natives also informed me that on account of the still greater number of bulls earlier in the season the fighting had been violent and incessant on the rookeries. This abundance of bulls I have been told has been noticed for several years.

In strong contrast to this exuberance of virility was the thinness of the female ranks. They spread over nearly the same territory as formerly, but the lines had shrunk and in many places there were large, bare gaps. The magnificent Palata showed many of the characteristic features that I knew so well, and yet it was only the shadow of the old rookery. The line running backward up the gully was there, but it was very thin and narrow and broken in places. A comparison of my old sketch (pl. 52), taken at high water, with my recent photograph from the identical standpoint, low water (pl. 51), will give some idea of the difference I saw. Although taken from a point somewhat different from mine, Colonel Voloshinof's photograph of Palata as it looked in 1885 (pl. 53a) fully bears out my sketch, when it is remembered that he was standing several hundred feet lower to the right and that consequently the solid belt of seals at the base of Palata must look so much narrower on his picture than on mine. My other photographs (pls. 48, 49), looking toward Palata and Sabatcha Dira from the outlying rocks off the former, serve to more fully illustrate the disconnected and thin character of the breeding grounds in 1895.

And as with Palata so with Zapalata. The change was less striking, though by no means less radical. On the contrary, Zapalata, in proportion, was even more deserted. It is a source of great satisfaction to me that in photographing this rookery I happened to place my camera on the exact spot where Colonel Voloshinof ten years previously had exposed a plate, and although it evidently met with some mishap, so that this picture is one of the less satisfactory ones, I have reproduced the two (pls. 56 and 57a). On the whole light beach my photograph shows nothing but stones, while the same area in Voloshinof's is teeming with thousands of breeding seals. By turning my camera in the opposite direction I obtained the other picture (pl. 55) showing the same depleted condition.

To complete the series of photographs illustrating the condition of the various parts of the rookery I finally reproduce one by Mr. Grebnitski (pl. 57b), taken from the rocks in Sikatchinskaya Bukhta August 3, as I had no opportunity to photograph it myself. It tells the same story.

The total number of skins shipped from Glinka in 1895 was 4,809 (including a few hundreds of the autumn catch of 1894), a trifle more than one-half the catch of the previous year.

In view of the great number of half bulls and bulls it is interesting to note that the skins both from Karabelni and from Glinka were unusually small. No regular tally of the weight of the entire catch was kept on Copper Island, but upon our arrival there was a great complaint of the lightness of the skins. During my stay at Glinka, from August 2 to 11, the natives were unable to take more than one small drive, in spite of their anxiety to make more money and to obtain more fresh meat. The skins of this drive were weighed according to Mr. Grebnitski's directions, who himself kept tally. The weight of the skins was noted to the half pound, but to simplify the list and make it easily comparable with the corresponding ones upon Bering Island I only recorded whole pounds; a skin weighing 7½ pounds, for instance, I counted as 8 pounds, while 7¼ pounds was recorded as 7. Mr. Grebnitski's tally and my tally will differ to that extent, but the average will undoubtedly be very nearly the same. This average, it will be seen, is scarcely 7⅔ pounds. When I visited Copper Island in 1883 the company refused every skin under 8 pounds.

Weight of skins brought to the salt house at Glinka, Copper Island, August 8, 1895.

Weight.	Number.	Weight.	Number.
Under 6½ pounds (4½ to 6½)	35	Under 13 pounds	[illegible]
7 pounds	108	14 pounds	[illegible]
8 pounds	40	15 pounds	[illegible]
9 pounds	17		
10 pounds	11	Total number of skins	[illegible]
11 pounds	6		
12 pounds	5	Average weight of skins....lbs.	[illegible]

COMPARATIVE CONDITION OF THE BERING ISLAND AND COPPER ISLAND ROOKERIES, 1895.

In what little there has been said and written about the seal industry on the Commander Islands it has always been assumed that the conditions, aside from the difference in the physical aspect of the rookeries, were the same on both islands constituting the group. And this was actually the case not very long ago, at least in 1882–83, and, so far as I could ascertain, up to 1890. In that year, it is said, the bachelors were becoming somewhat scarce on Copper Island and some active work had to be done in order to secure the desired quantity, but inasmuch as this quantity appears to have been the largest ever shipped from Copper Island the falling off can not have been excessive, though it may have been apparent on the hauling grounds.

In 1892, however, the decrease in the number of females on Copper Island became serious enough to cause public comment, while on Bering Island difficulty was experienced in obtaining the requisite, though now limited, number of bachelors.

Whatever the cause of the recent disturbance of the equilibrium of the rookeries on the Commander Islands each island has been affected differently, and the conditions to-day of the rookeries on Copper Island deviate radically from those of Bering Island. It may be useful to compare them point for point.

In Bering Island the number of females in proportion to the mature males is very much greater than on Copper Island. This results in an apparent deficiency in bulls on Bering Island and a corresponding superabundance of them on Copper Island.

In Bering Island the killable males are of great size, as proven by the weight of the skins, which in 1895 averaged over 10 pounds. The greatest deficiency was consequently in the younger seals, while yearlings were almost entirely absent. The proportion between the ages of the killables was quite reversed on Copper Island, where a lack of the older bachelors was seriously felt, while the great bulk of the skins taken were from the younger classes, the skins averaging probably less than 8 pounds.

As for the pups it may be stated that they were abundant in proportion to the females on both islands, and no difference could be discovered in that respect. On Bering Island I found a considerable mortality due to starvation among the pups. On Copper Island no such thing was observed, but this negative result must not be taken as a proof or even an indication that no such mortality took place. It must be remembered that most of the breeding grounds on Copper Island are inaccessible, and that it is almost an impossibility to distinguish the dead bodies of the pups from such a distance as it is necessary to watch them on Copper Island.

It was by the merest accident that I myself discovered the sad state of affairs on Bering Island, for if I had not gone over the rookery after the wholesale raid of the breeding ground I should have remained in ignorance of the fact. The natives themselves were either concealing it, out of fear that they would be blamed, or, more likely, they were ignorant of the extent of the calamity. After the season is over the natives keep aloof from the rookeries, as they are strictly enjoined from disturbing the breeding grounds without necessity. The simple fact, therefore, that I can report no unusual mortality on the Glinka or Karabelni rookeries proves nothing one way or the other.

RAIDING OF COMMANDER ISLANDS ROOKERIES.

The rookeries of Bering and Copper islands have always been a sore temptation to marauding schooners, especially those of the latter island, where, in addition to the fur seals, there was a fair chance of obtaining a number of the costly sea otters, a few of which would go a long way to pay for the expenses and risks of such an expedition. The material is not at hand for an exhaustive list of all the attempted and accomplished raids on the Commander Islands rookeries, but I shall give a sufficiently detailed account to show that considerable damage has been done by the pirates.

Leaving out of consideration the possible raids during the flourishing times of the whale fishery in the forties, and coming down to recent days, we find that at first the raiders were attracted to Copper Island by their knowledge of the plentiful occurrence of the sea otter on that island, a knowledge gained by many of them during their visits to the islands during the "interregnum." We thus find the American schooner *Three Sisters*, Captain Herendeen, caught on July 22, 1879, at anchor off the Northwest Cape of Copper Island, the mate and sailors camping ashore near the sea-otter rookery. Twenty-nine skins of grown sea otters and 16 sea-otter pups were taken from her, but also 123 fur seals, which it was claimed, however, were taken at sea. Instead of seizing the vessel the authorities let her go with a warning. The seal skins found on her proved that sea otter was not the only game looked for, and in the same year, on August 10, an unknown schooner, off Glinka, attempted to land three boats, but the natives frightened them off.

The year 1880 saw an increased activity on the part of the poachers, who were much emboldened by their successes in the Okhotsk Sea and the Kuril Islands. As early as July 7 the *Three Sisters*, of San Francisco, Captain Beckwith, was seen at anchor off Glinka rookeries, killing seals. The crew was driven off by the natives shooting at them. Mr. E. P. Miner (Brit. Counter Case, App., p. 113; Fur-Seal Arb., VIII, p. 700) gives the following graphic account of this raid:

She was chartered by H. Liebes & Co., and was supposed to be going out on a sea-otter and fur-seal hunting expedition, but as a matter of fact all of us who shipped as hunters knew that the vessel had been fitted out for a raid on the rookeries on the Commander Islands. Early in July we started from the Alaskan coast for the Commander Islands, and about the middle of the month landed on the west side of Copper Island. We landed in the daytime in a fog. There were three boats. We had killed about 800 seals before we were seen, but had taken none of them on board the vessel. A baidarka with natives in it came along then, and we knew that warning would be given to the people on the island, and we began skinning the seals. In about an hour what appeared to be 50 men came across the island to where we were and began firing at us with blank cartridges. We started off at once, but when some distance from land began killing seals in the kelp. Then they fired on us with bullets, and we went on the schooner. All the skins we got of the seals we killed was 153. Before we made the raid on the seal rookery we had anchored at the north end

of Copper Island, where sea otters are plentiful, and while there a baidarka full of natives came out to us and served a warning on the captain, telling him that he must not hunt within 5 miles of the islands—the miles were, I suppose, meant for Russian miles. We went from Copper Island to the Kurile Islands to look for sea otter, and after getting one sailed, on the 4th of August, for San Francisco.

On July 13, 1880, a schooner was reported at anchor close to the beach of North Rookery, Bering Island, and being discovered had probably poor success. Not so, however, with the schooner that raided the Glinka rookeries about two weeks later, killing "a number of seals, say about 400." This can hardly have been the *Otsego*, Captain Isaackson, flying the Dutch flag, which was boarded on August 6 by the steamer *Aleksander II* at Glinka, but was found to have "four to five fur seals only." On the next day Mr. Grebnitski boarded the schooner *Alexander*, Captain Littlejohn. The latter swore that he had shot the 53 seals found on board, denying that he had been near a rookery, and was warned off. Captain Sandman on August 12 confiscated 4 sea otters from the schooner *Flying Mist*, Captain Bradford, which was found at anchor "around the Northwest Cape (Copper Island) close inshore about 8′ SE. from rocks," but with "apparently no seals."

On September 1 the kossak and a watchman boarded the schooner *Seventy-Six*, Captain Potts, off the Southeast Cape, Copper Island, finding only one man on board, the rest being on shore. The watchmen went after them, but the schooner's crew made directly for the vessel as soon as they saw them coming, and got away. "On shore the watchman found about 40 seal carcasses which the schooner's people had killed and skinned, all bulls."

The raiders did not confine themselves to Copper Island by any means, for on September 10 an unknown schooner visited the South Rookery on Bering Island, killing about 25 seals, and two days later a schooner, possibly the same, was reported "on the north side shooting seals at sea," but left on the approach of the steamer *Aleksander II*. After the departure of the latter, the schooner came in again on September 13, but the whaleboat which was sent ashore was driven away, by the natives firing at the crew, before any seals were killed.

Captain Littlejohn, in the schooner *Alexander*, evidently took no heed of the warning given him, for on October 16 he was on the Glinka rookeries and took "some seals again," an exploit which he repeated on the moonlight night of the 18th, when he secured "a number of seals (mostly cows) before morning."

Although the record for 1881 is not quite so black, it is in some respects fully as interesting.

On Bering Island two schooners appeared at the North Rookery on October 8 and landed six whaleboats, killing many seals, mostly females and young ones. Mr. Grebnitski himself went to the rookery, but the schooner had already left. Exactly a week later two schooners again arrived off the North Rookery, possibly the same, landing five whaleboats early in the morning of October 16. This time, however, the natives were prepared, and 40 of them, well armed with rifles, met the raiders. The latter now opened negotiations, the captain offering a gold watch to the chief, money to the men, and whisky to all for the privilege of taking 300 fur seals. The natives refused, and the raiders, after having examined some of the Berdan breech-loading rifles and having received an affirmative answer to their question whether the natives would shoot if they should attempt to kill any seals, withdrew. "Seeing that they could do nothing, they put to sea."

It is probably to a raid in 1881 that Mr. S. L. Beckwith's testimony relates (Fur Seal Arb., VIII, p. 810), in which he states that as "a mate

on the vessel *Alexander*, belonging to Hermann Liebes, of which Captain Carlson was master," "in 1880, or thereabouts," he "went ashore and raided Copper Island, and got about 100 seals, and we would have got a great many more, for we had about 1,200 killed when we were fired upon. A Japanese vessel was there the day before raiding and several of the raiders were shot." This last information seems to tally with the following record from Bering Island: "October 11. A schooner has been at Staraya Gavan. Buried one Japanese."

The fact was that the natives, incensed by the numerous raids, were using their guns freely during 1881. Thus, earlier in the season the *Annie Cashman*, of San Francisco, went to Copper Island, and Mr. E. P. Miner states (Fur Seal Arb., VIII, p. 701):

> We landed there one clear day, and in one and one-half hours took 250 seals, and had them all on board before the natives came to where we were. We went away then, but came back the next night. We were fired on by the natives, and did not land.

It went particularly hard with the British schooner *Diana*, sailing from Yokohama earlier in the season. She had been raiding various rookeries on the Kuril Islands and finally went to Copper Island, where she came to grief. She anchored off Zapalata and a boat was immediately sent ashore. They did not reach it, however, for behind the rocks a large band of natives, under command of the kossak, Selivanof, were lying in wait. When the boat was well within range, the kossak gave the signal and a complete rain of bullets struck the unfortunate boat. One man was killed, one severely wounded, and the boat, nearly sinking, made the schooner with the greatest difficulty. It is said that fully 300 shots were fired by the natives. The *Diana*, now severely crippled, sought safety in flight, but on the way to Petropaulski unfortunately fell in with a Russian man-of-war—the *Strelok*, if I remember rightly. The suspicion of the commander was aroused, an investigation made, which resulted in the imprisonment of the crew and the confiscation of the vessel, in spite of the plea of the captain that no raid was intended and that the boat was sent ashore only to take water, of which the schooner was short.

The case was made the subject of diplomatic correspondence between Great Britain and Russia, and the latter power sent a revisor to Copper Island in 1882 to investigate the matter. His report was favorable to the natives, no doubt, for the Russian Government, in recognition of their meritorious conduct, invested the native chief of Copper Island with a silver-laced kaftan, while Selivanof was promoted to be a sergeant and a beautiful Toledo blade was presented to him upon which was engraved a suitable inscription commemorative of the occasion.

It was plain that something would have to be done to check this growing evil, which had already been assuming alarming proportions, but the authorities were puzzled how to proceed effectively. One or two large war vessels were already patrolling the region, but their service was very ineffective, as they did not take the risk of going close under the foggy and dangerous coasts of the islands. It was thought, however, that strict regulations for the whole traffic of trading and hunting in Russian waters, which would leave the schooners no excuse or technical loopholes, would deter the marauders, especially in view of the past experience, and seeing that the Russian Government was in earnest in backing up the natives in their defense of the rookeries. A proclamation was therefore prepared and issued, first by the Russian consul at Yokohama and afterwards also by the Russian consul in San Francisco, the publication being specifically authorized

by the Imperial Russian ministry of foreign affairs. The consular warning was as follows:

NOTICE.

At the request of the local authorities of Bering and other islands, the undersigned hereby notifies that the Russian Imperial Government publishes, for general knowledge, the following:

1. Without a special permit or license from the governor-general of Eastern Siberia, foreign vessels are not allowed to carry on trading, hunting, fishing, etc., on the Russian coast or islands in the Okhotsk and Bering seas, or on the northeastern coast of Asia, or within their sea-boundary line.

2. For such permits or licenses foreign vessels should apply to Vladivostok, exclusively.

3. In the port of Petropaulovsk, though being the only port of entry in Kamtchatka, such permits or licenses shall not be issued.

4. No permits or licenses whatever shall be issued for hunting, fishing, or trading at or on the Commodore or Robben islands.

5. Foreign vessels found trading, fishing, hunting, etc., in Russian waters without a license or permit from the governor-general, and also those possessing a license or permit who may infringe the existing by-laws on hunting, shall be confiscated, both vessels and cargoes, for the benefit of the Government. This enactment shall be enforced henceforth, commencing with A. D. 1882.

6. The enforcement of the above will be intrusted to Russian men-of-war, and also to Russian merchant vessels, which for that purpose will carry military detachments and be provided with proper instructions.

(Signed) A. PELIKAN,
His Imperial Russian Majesty's Consul.

YOKOHAMA, *November 15, 1881.*

This proclamation was distributed to all outgoing vessels, and evidently had some effect, as the raids during the years following fell off very considerably. A few skippers, more desperate than the others, however, were still taking chances. Thus, on August 12, 1882, the schooner *Otome*, of Yokohama, with a Japanese crew, but European officers, raided the North Rookery on Bering Island, though with disastrous results. After having tried the watchfulness of the natives during dark and foggy nights for more than two weeks, three boats were sent ashore from the *Otome* on the 12th of August after dark. At Kisikof, the southern extremity of the rookery, about 350 bachelor seals were clubbed, and the skinning was already far advanced when the natives crept up to the pirates and captured the mate; the next morning the schooner was seized by Mr. Grebnitski, on board the steamer *Aleksander II.* The *Otome* was finally taken to Vladivostok and condemned. The captain was charged with piracy, but Mr. Snow, who had passage in the schooner, was allowed to go, as there was no proof of his connection with the affair as owner or supercargo.

The fact that the proclamation did not entirely stop the raiding, induced the Russian authorities in 1884 to station a detachment of soldiers on the islands for their protection, as related elsewhere in this report, and the schooner *Sakhalien*, raiding the South Rookery on Bering Island, fell the first victim to the regulars.

The captains of the schooners were becoming wary, and, to avoid being captured within the 3-mile limit of the territorial waters, adopted the tactics of keeping some distance at sea, only sending their boats or canoes to kill the seals on or off the rookeries, as the case might be.

The first schooner caught in this practice seems to have been the British vessel *Araunah*, Captain Siewerd, which was seized off Copper Island on July 1, 1888, by Grebnitski, in the *Aleksander II.* The significant point was that while the schooner itself was not nearer than 6 miles, two of its canoes were hunting seals within half a mile of the shore, and, in spite of the diplomatic remonstrances by Great Britain,

Mr. Grebnitski was fully sustained by Mr. Giers, the Russian minister for foreign affairs, in his letter of August 16, 1889. However, although caught as a raider, the *Araunah* was in reality a regular pelagic sealer from British Columbia, with Indian hunters and Indian canoes.

PELAGIC SEALING AT COMMANDER ISLANDS.

The tactics described in the closing paragraphs of the chapter relating to the raiding of the rookeries, of sending the canoes in among the breeding seals off the rookeries, to kill them in the water while the schooner remained at sea, were the forerunner of pelagic sealing around the Commander Islands. It was claimed by the crew of the *C. G. White*, Captain Hagman, who gave themselves up (in 1890) to the authorities on Copper Island, that they were blown ashore after having lost their vessel; but the natives evidently thought differently, for they fired upon three of the boats as they attempted to land, killing one man and wounding two, while seven bullets went through the boats. However, as the schooner was not captured, the men were sent back to San Francisco in the company's steamer. While it is true that the *James Hamilton Lewis* (formerly the *Ada*) was caught right under the South Rookery of Bering Island in 1891, by the Russian war vessel *Aleut*, it is certain that many of the 416 skins (90 per cent of which it has been stated were females) confiscated were killed at sea.

When but few seals were left on Robben Island and the Kurils to raid, the schooners fitting out in Japan turned their attention to following up the Commander Islands herd on its northward migrations along the outer side of the Kuril chain, adopting the regular methods of pelagic sealing. Owing to the necessity of having heavier and stronger vessels on that coast, because of the much more severe weather and the consequent greater risk, the pelagic sealing developed much slower on the Asiatic side than on the American, and played a comparatively unimportant rôle up to 1892.[1]

The latter year saw the total prohibition of sealing in the eastern, or American, part of Bering Sea, according to the modus vivendi between Great Britain and the United States pending the fur-seal arbitration by the Paris tribunal. The sealing fleet was already on their way when they were informed of the closing of Bering Sea, the result being that quite a number of the vessels, rather than return home, made straight for the Commander Islands to try their luck there. No less than 32 Canadian vessels crossed over to the Russian side after having completed their coast catch. In addition, there seems to have been 5 British schooners sailing from Japan, consequently altogether 37 British vessels. To these must be added a few American schooners, of which I have no detailed account at hand. Capt. Charles Lutjens, in the *Kate and Anna*, caught about 150 seals "between from 40 to 100 miles south of the Commander Islands, and these were seized and confiscated"

[1] The British Bering Sea commissioners, writing in June, 1892, could therefore state as a "fact that pelagic sealing, as understood on the coast of America, is there [Asiatic Coast] practically unknown." It is probable, however, that the real beginning was made already in 1891, though on a small scale. Capt. Charles Lutjens, of San Francisco, owner of the schooner *Kate and Anna*, states (Fur Seal Arb., VIII, p. 715) that on going into Bering Sea on June 6, 1891, he was warned out, and went directly to the Russian side, where he got 450 seals. The *Penelope*, Capt. J. W. Todd, of Victoria, was also there that year; also *Beatrice*, Capt. M. Keefe, who got 500 seals there; *Umbrina*, Capt. J. Matthews, 80 seals; *Maud S.*, Capt. A. McKeil, and probably several others.

The number of skins taken from the British schooners was as follows:

Name of vessel.	Number of skins.
Marie	[illegible]
Rosie Olsen	[illegible]
Carmolite	[illegible]
Vancouver Belle	[illegible]
W. McGowan	[illegible]
Ariel	[illegible]
Total	[illegible]

The confiscated skins were sold by auction, part in Petropaulski, part in London.

The prize moneys from the sale of the schooners and outfits were distributed among the captors.

It will be seen that all of the British schooners were captured outside of the 3-mile limit, and diplomatic remonstrances and claims for damages were at once made by Great Britain. The Russian Government appointed a special commission to investigate the seizures, and found that the *Marie*, *Rosie Olsen*, *Carmolite*, and *Vancouver Belle* were properly seized, as their boats had been sealing in territorial waters, while the proof that the *Willie McGowan* and *Ariel*, or their boats, had been sealing inside the 3-mile limit was considered insufficient. The findings of the commission are rendered in detail in the Twenty-sixth Annual Report of the Canadian Department of Fisheries.

The experience of 1892 was conclusive proof that it was feasible for the schooners to stay 20 miles away from the islands and yet send in their boats to the rookeries to prey upon the breeding seals going to and fro. It was also made plain that there would be very little chance of stopping the traffic by means of large cruisers patrolling the sea. The Russian authorities, therefore, were very anxious to establish a prohibitive zone around the islands wide enough to make it impossible for the boats to raid the rookeries independently, the mere presence of the schooner inside of this limit being evidence of illegal sealing. Negotiations were progressing during the winter of 1892 and 1893 between the two governments, and finally, in May, 1893, a provisional agreement was entered into between Russia and Great Britain, establishing a protective zone of 30 miles around the Commander Islands and Robben Island. It is evident that the Russian authorities at that time were unaware of the fact that the great bulk of the skins taken by the British Columbia sealing fleet were obtained on the feeding-grounds of the breeding females, and were also ignorant of the exact location of these grounds, or they would not have rested satisfied with the zone of 30 miles, which has been of but very little protective value to the seals. In view of the rôle which the Russian acceptance of this 30-mile zone played in the establishment of the 60-mile zone around the Pribilof Islands, it is important to remember that in accepting the 30-mile zone the Russians had a much more limited object in view, viz, to make it impossible for the pelagic sealers to raid the rookeries.

The Provisional Agreement of May, 1893.

The provisional arrangement, which was to be entirely without retroactive force as regards the British vessels seized in 1892, is as follows:

I. During the year ending December, 1893, the English Government will prohibit their subjects from killing or hunting seal within a zone of 10 marine miles on all

of the territorial waters of Russia; they adopted the tactics of sending the boats inshore to hunt off the rookeries, and as a consequence many of them had to feel the claws of the bear. The Russian authorities, evidently in anticipation of what would happen, had several cruisers patrolling her seas, and no less than seven schooners, one hailing from the United States and the other six owing allegiance to Great Britain, were captured by the commanders of the cruisers *Zabiaka*, Captain de Livron, and *Vitiaz*, Captain Zarine, and by Mr. Grebnitski on board the company's steamer *Kotik*. The schooners were taken to Vladivostok, condemned, and sold, except the *Rosie Olsen*, which was rechristened the *Prize* and given to Capt. W. Copp, of the *Vancouver Belle*, on condition that he take thirty-seven of the captured sailors to British Columbia. The other sailors were sent home in the American ship *Majestic*, except the men of the schooners *Marie* and *Carmolite*, who were taken to Vladivostok and then shipped to Japan.

The schooners, whose capture created a great excitement in Canadian sealing circles, were as follows:

(1) *C. H. White*, of San Francisco, seized by the *Zabiaka* July 16, between Copper Island and Bering Island.

(2) *Willie McGowan*, of Shelburne, Nova Scotia, seized by the *Zabiaka* July 18,[1] about 18 miles[2] southwest of Palata, Copper Island.

(3) *Rosie Olsen*, of Victoria, British Columbia, seized by Mr. Grebnitski, July 26, in 55° 23′ north latitude and 165° 27′ east longitude, or about 10 miles northwest of Zapadni Mys, Bering Island.

(4) *Ariel*, of Victoria, British Columbia, seized by the *Zabiaka*, on July 28, apparently about 10 miles southwest of the Copper Island rookeries.[3]

(5) *Vancouver Belle*, of Vancouver, seized by the *Zabiaka*, on August 12, about 17 miles south of the southern extremity of Copper Island.

(6) *Marie*, of Maitland, Nova Scotia, seized by Mr. Grebnitski, August 21, in 54° 36′ north latitude and 168° 24′ east longitude, or about 9 miles[4] northeast from the south end of Copper Island, the nearest land.

(7) *Carmolite*, of Vancouver, seized by the *Vitiaz* (with Admiral S. O. Makarof on board), August 29, in 54° 29′ north latitude and 168° 2′ east longitude, about 6 miles[5] southeast of the isthmus (Peresheyek) of Copper Island.

In addition, (1) one boat and crew belonging to the schooner *Marvin* were seized by the natives on one of the Copper Island rookeries for killing seals. (2) Three boats and crews having clubbed seals on the rookeries were captured by the *Zabiaka* on July 21, 9 miles from the southern extremity of Copper Island; they belonged to the schooner *Sayward*. (3) Two boats and 6 sailors from the *Annie C. Moore* were caught on one of the rookeries by the natives.

[1] By some mistake the date is given as June 6 in the report of the Russian commission as rendered in the 26 Ann. Rep. Canad. Dept. Fish., p. clix. July 6, old style, is probably intended.

[2] In the same report the distance from the coast is given as 21 miles, although the position is said to have been 54° 21′ north latitude and 167° 43′ east longitude, which is a trifle more than 18 miles from the nearest point of Copper Island.

[3] The positions and distances in the report quoted above are so contradictory that it is hard to tell which is meant to be correct. Thus, in the present case, it is stated (p. clix) that "The schooner *Ariel* was seized by the cruiser *Zabiaka* on the 16th July [old style] at 3.30 a. m., in 54° 31′ north latitude and 167° 40′ east longitude. At the time of the seizure she was making away from the coast under easy sail, and was 21 miles from Copper Island." Of course both statements can not be correct.

[4] Seven in the report above referred to.

[5] Eight miles according to the above report.

Report of vessels of British Columbia sealing fleet sealing on the "Russian side," season 1893.

Vessels.	Tons.	Crews.		Boats.	Canoes.	Masters.	Catch.	
		White.	Indian.				Japan coast.	Russian side.
Victoria, British Columbia:								
Triumph	98	7	28	4	14	C. N. Cox	.....	68
Sapphire	108	8	26	12	3	Wm. Cox	.....	30
E. R. Marvin	117	27	.....	8	.....	J. Gould	.....	217
Mascot	40	7	14	2	7	H. F. Sieward	.....	22
Dora Sieward	94	24	.....	7	.....	R. O. Lavender	.....	64
Minnie	46	5	20	2	10	J. Mohrhouse	.....	3
Annie E. Paint	82	23	.....	8	.....	A. Bissett	.....	401
Diana	50	19	.....	6	.....	A. Nelson	.....	194
Mermaid	73	23	.....	8	.....	W. H. Whiteley	940	215
Fawn	59	3	21	2	10	L. Magnessen	.....	77
Ocean Belle	83	25	.....	8	.....	T. O'Leary	.....	147
Arietis	86	23	.....	7	.....	A. Douglass	920	464
Ainoko	75	5	14	1	7	G. Heater	.....	6
Katharine	82	6	19	2	9	W. D. McDougall	.....	302
Enterprise	69	24	.....	7	.....	J. W. Todd	1,027	254
Agnes McDonald	107	25	.....	7	.....	M. F. Cutler	2,333	438
Viva	92	23	.....	6	.....	J. W. Anderson	1,441	3
Umbrina	98	24	.....	7	.....	C. Campbell	1,827	625
Vera	60	19	.....	5	.....	W. Shields	1,910	9
Otto	86	8	24	2	12	M. Keefe	.....	397
Mary Taylor	42	18	.....	5	.....	E. Shields	.....	240
Brenda	100	26	.....	8	.....	C. E. Locke	.....	468
Libbie	93	23	.....	7	.....	F. Hackett	1,242	380
City of San Diego	46	14	.....	5	.....	M. Pike	942	141
Geneva	92	26	.....	8	.....	W. O'Leary	1,612	654
Casco	63	19	.....	6	.....	O. Buckley	1,473	139
Carlotta G. Cox	76	24	.....	7	.....	W. D. Byers	2,396	378
Oscar and Hattie	81	24	.....	7	.....	W. E. Baker	1,178	1,459
Teresa	63	20	.....	6	.....	E. Lorens	677	10
Sadie Turpie	56	24	.....	7	.....	C. LeBlanc	927	475
Maud S	97	24	.....	7	.....	R. E. McKeil	989	56
Mary Ellen	63	23	.....	7	.....	W. O. Hughes	1,573	486
Walter L. Rich	76	24	.....	7	.....	S. Balcom	.....	317
Annie C. Moore	113	26	.....	8	.....	J. Daley	822	223
Walter P. Hall	98	23	.....	7	.....	J. B. Brown	768	265

Wise by experience, the sealing fleet kept pretty well outside the 30-mile zone, though the following seizures of British vessels were made:

(1) *Minnie*, of Victoria, British Columbia, seized by the *Yakut*, July 17, 21 miles southeast of Copper Island.

(2) *Ainoko*, of Victoria, British Columbia, seized by the *Yakut*, July 22, 16 miles south of Copper Island.

(3) *Maud S.*, of Victoria, British Columbia, seized by the *Yakut*, August 29, 22 miles southwest of Copper Island.

(4) *Arctic*, of Shanghai, seized by the *Zabiaka* within the 30-mile zone.

Of these, only the *Minnie* was afterwards condemned.

The provisional agreement as given above was renewed in 1894 and 1895 for those years. Owing to the threatening political aspects, as a consequence of the Japanese-Chinese war, the Russian Government had only one ship patrolling the 30-mile limit in 1895. The British cruiser *Caroline* did patrol duty early in the season, and was relieved by the *Porpoise*, Capt. Francis R. Pelly, commanding. No seizures were made in that year.

As schooners flying the flag of the United States were also among the fleet preying upon the Commander Islands herd, it was found necessary to establish a modus vivendi with the United States similar to the provisional agreement with Great Britain. An arrangement, differing only in a few verbal changes from the latter, was drawn up by the imperial minister for foreign affairs, Mr. Giers, and signed in Washing-

ton by the representatives of the respective Governments on May 4, 1894. The exact text of this arrangement, which "shall only be in force until further orders," is found in Senate Executive Document No. 67, Fifty-third Congress, third session, being the President's message regarding the enforcement of regulations respecting fur seals, page 82.

The twenty-seventh annual report of the Canadian department of fisheries contains an account of the Canadian pelagic sealing operations on the Asiatic side during 1894, by Mr. R. N. Venning, from which we quote the following abstracts:

The vessels this year operating in the vicinity of the Russian seal islands are reported to have kept well outside the protective zone, principally working about 100 miles southeast of Copper Island. As a consequence, the present year's operations are marked by an almost total absence of interference with the Canadian fleet by Russian authorities.

The only instance reported is that of a sealing boat of the schooner *May Belle*, of Victoria, British Columbia, manned by Joseph Morrell, Charles K. Leclaire, and James Costin, which lost the vessel in a fog, and after remaining out all night and failing to find the schooner on the following morning, the occupants, fearing a storm which was threatening, made for the shore of Copper Island for shelter. They were discovered and arrested before landing.

The boat and her equipment were retained at Copper Island, and the three men were taken to Petropaulovski, on the mainland of Kamchatka, where, after a detention of thirty-two days, they were handed over to Her Majesty's ship *Daphne*, taken to Yokohama, Japan, and delivered to Her Majesty's consul at that port.

They were imprisoned, but released some four hours later, and informed by the consul that the charge against them was not sufficient for their detention. They were accordingly sent by Her Majesty's consul to Victoria, British Columbia, by Canadian Pacific Railway steamship, where they arrived on the 20th November, 1894.

Claims for damages have been filed by the parties and by the owners of the sealing boat, and representations have been made to Her Majesty's Government on the subject.

Report of vessels of British Columbia sealing fleet in the vicinity of Copper Island, season 1894.

[From 27 Ann. Rep. Canada Dept. Fish.]

Vessels.	Tons.	Crews.		Boats.	Canoes.	Masters.	Catch.	
		White.	Indian.				Japan coast.	Vicinity Copper Island.
Victoria:								
Enterprise	69	22	.....	8	.....	O. Scarf	1,254	314
Rosie Olsen	39	6	16	2	8	A. B. Whidden	1,043	.....
Umbrina	99	25	.....	8	.....	C. Campbell	2,588	153
Oscar and Hattie	81	24	.....	7	.....	A. Folger	1,733	176
Diana	50	19	.....	6	.....	A. Nelson	1,961	433
Brenda	100	26	.....	8	.....	C. E. Locke	2,383	343
Aristis	86	25	.....	8	.....	A. Douglass	1,197	.....
Casco	63	22	.....	6	.....	O. Buchols	1,926	.....
Dora Steward	94	26	.....	8	.....	F. Cole	2,584	.....
Walter A. Earle	68	8	20	2	10	L. Magnessen	1,471	.....
Fawn	59	6	18	1	9	M. Keefe	911	.....
Agnes McDonald	107	26	.....	8	.....	M. Cutler	1,707	471
W. P. Hall	99	24	.....	7	.....	J. B. Brown	710	.....
Mermaid	73	25	.....	8	.....	W. H. Whiteley	1,603	505
City of San Diego	46	16	.....	5	.....	M. Pike	1,304	250
Mary Taylor	43	19	.....	5	.....	E. Robins	874	250
Libbie	98	22	.....	7	.....	F. Hackett	1,010	200
May Belle	58	14	.....	6	.....	E. Shields	925	197
Mary Ellen	68	23	.....	7	.....	W. O. Hughes	1,909	86
Viva	92	26	.....	7	.....	J. Anderson	1,437	.....
W. P. Sayward	60	20	.....	6	.....	G. Ferey	606	35
Penelope	70	20	.....	7	.....	L. McGrath	1,306	296
Vera	60	19	.....	6	.....	W. S. Shields	1,075	.....
Carlotta G. Cox	76	24	.....	7	.....	W. Byers	1,947	.....
Otto	86	25	.....	8	.....	J. McLeod	1,014	623
E. B. Marvin	96	23	.....	7	.....	C. J. Harris	2,118	.....
Annie E. Paint	82	26	.....	9	.....	A. Bassett	1,497	531
Geneva	92	27	.....	9	.....	W. O'Leary	1,092	558
Teresa	68	25	.....	7	.....	F. Gilbert	1,102	120

Report of vessels of British Columbia sailing fleet, etc.—Continued.

Vessels.	Tons.	Crews.		Boats.	Canoes.	Masters.	Catch.	
		White.	Indian.				Japan coast.	Vicinity Copper Island.
Victoria—Continued.								
Ocean Belle	82	22	.....	6	.....	T. O'Leary	520	274
Sadie Turpie	56	22	.....	8	.....	C. Leblanc	1,783	171
Maud S	97	24	.....	8	.....	R. McKiel	1,343	9
Aurora	41	18	.....	5	.....	H. J. Lund	683	2
Florence M. Smith	99	27	.....	8	.....	J. Allen	96	2
Mascot	40	4	16	1	7	H. F. Steward	556	.....
Pioneer	66	24	.....	6	.....	W. R. Baker	.....	1,[illegible]
Vancouver:								
Beatrice	49	21	.....	6	.....	.....	1,703	.....
United States:								
Louis Olsen	.....	.....	.....	.....	.....	.....	435	.....
Anna Matilda	.....	.....	.....	.....	.....	.....	7	.....
Josephine	.....	.....	.....	.....	.....	.....	48	.....
Total	.....	.....	.....	.....	.....	.....	49,483	7,[illegible]

The pelagic sealing seasons of 1894 and 1895 are most notable for the excessive number of skins taken during the migration and for the falling off in the catch on the Copper Island feeding grounds, indicating the approaching exhaustion of this locality. But, in addition, the latter year is notable for being the first year in which pelagic sealers have to any extent attacked the feeding grounds of the Bering Island rookeries.

It has been long known that seals occurred in summer in the waters northwest of Bering Island, from Cape Kamchatka to Karaginski Island; but it seems as if in 1895 the sealers repaired there systematically and with success. I am indebted to Mr. C. H. Townsend for this information and for the following abstracts of the logs of the schooners *Ida Etta*, sealing off Cape Nagikinski, and *Jane Grey*, sealing off Cape Afrika:

Schooner Jane Grey.

Date.	Location.	Seals.
1895.		
Aug. 16	56° 44′ N. 164° 25′ E.	[illegible]
Aug. 17	56° 09′ N. 164° 10′ E.	[illegible]
Aug. 18	56° 09′ N. 164° 10′ E.	[illegible]
Aug. 19	56° 09′ N. 164° 10′ E.	1
Aug. 20	56° 09′ N. 164° 10′ E.	13
Aug. 21	56° 09′ N. 164° 10′ E.	13
	Total	[illegible]

Schooner Ida Etta.

Date.	Location.	Seals.
1895.		
Aug. 20	Cape Nagikinski, SW. 30 miles	[illegible]
21	Cape Nagikinski, SW. 20 miles	[illegible]
24	Cape Nagikinski, SW. 20 miles	[illegible]
26	Cape Nagikinski, SW. 20 miles	[illegible]
27	Cape Nagikinski, W. 30 miles	10
31	Cape Nagikinski, W. 30 miles	1
Sept. 1	Cape Nagikinski, WSW. 25 miles	[illegible]
2	Cape Nagikinski, SW. 20 miles	[illegible]
3	Cape Nagikinski, SW. 30 miles	[illegible]
4	Cape Nagikinski, SW. 25 miles	[illegible]
	Total	[illegible]

I am also indebted to Mr. Townsend for figures relating to the catch of 1894, and for the information that the total Japan Coast catch for 1895 amounted to 31,048 skins, and total catch of the pelagic sealers in Russian waters 7,684; together, 38,732 skins. The Commander Islands herd, therefore, lost in 1895 no less than 35,000 seals, the majority females, besides the unknown number killed without being captured.[1]

During the five years, 1891 to 1895, inclusive, the "Asiatic catch," by pelagic sealers, may be summed up as follows:

Year.	Nationality of vessels.	Japan catch.	Russian catch.	Totals.	Grand totals.
1891					a5,847
1892	Canada	(f)	17,222		b26,752
	United States	(f)	1,224		
1893	Canada	29,270	12,013	41,283	63,082
	United States and Hawaii			21,799	
1894	Canada	49,483	7,437	56,920	90,067
	United States	31,376	1,771	33,147	
1895	Canada	18,686	6,605	25,291	38,732
	United States	12,362	1,079	13,441	

a From the report of Hon. Charles S. Hamlin, Assistant Secretary United States Treasury. (Doc. 187, Senate, Fifty-fourth Congress, first session, pt. 1, p. 6.) During that year 18,000 skins are recorded from "undetermined localities," some of which are probably "Asiatic" in their origin.

b This total is derived from Mr. Hamlin's report (*l. c.*). The "Japan catch" of 1892 was therefore over 8,300.

It will be seen that the known pelagic "Asiatic catch" from 1892–1895 was over 218,000 skins. Allowing the 8,000 skins for the Kurils and Tiuleni, the known loss in that period to the Commander Islands herd was about 210,000 seals, apart from the loss of wounded ones, etc. The number of seals killed on the islands in the same period was 105,236. The pelagic catch was, therefore, twice as large as that on the islands, while the loss to the herd from that cause was much greater. It is certainly no exaggeration to say that the actual loss to the herd in those four years has averaged 100,000 a year, one-half of which were probably females, while even in the palmiest days of exclusive land sealing the loss only averaged 50,000 seals a year, all males.

To illustrate and complete this chapter on pelagic sealing, I have had plotted on map 1 the position of eleven schooners off the Commander Islands during the sealing season. The positions for each noon are connected by straight lines and the figures represent the number of seals taken during the preceding twenty-four hours. Extracts from the log books are appended herewith. The logs are given in extenso in the fur seal arbitration case, except that of the *Henry Dennis*, for which I am indebted to Mr. Townsend.

[1] Mr. Townsend has since informed me that the loss to the Commander Islands herd is to be increased by at least 10,000 seals, as shown by reports from consuls, etc., recently received.

Catch of seal skins on board of British schooner Umbrina, 1892.

Date.	Latitude.	Longitude.	Remarks.	Daily catch.	Totals.
1892.	° ′	° ′			
July 20	53 50 N.	167 30 E.	Killed from schooner	2	[illegible]
22	53 50 N.	167 30 E.	.....do	1	[illegible]
23	53 40 N.	167 10 E.	.....do	1	[illegible]
24	53 40 N.	166 40 E.	Boats out all day	17	[illegible]
25	53 50 N.	167 00 E.		12	[illegible]
26	53 40 N.	166 30 E.		65	[illegible]
27	53 30 N.	166 25 E.		68	[illegible]
28	53 40 N.	166 50 E.		27	[illegible]
Aug. 1	53 30 N.	166 50 E.		3	[illegible]
2	53 40 N.	166 55 E.		10	[illegible]
3	53 34 N.	166 40 E.		8	[illegible]
4	53 40 N.	165 30 E.		65	[illegible]
5	53 45 N.	165 10 E.		72	[illegible]
6	53 55 N.	165 10 E.		56	[illegible]
7	54 10 N.	165 30 E.		10	[illegible]
10	53 40 N.	166 30 E.	Killed from schooner	1	[illegible]
11	53 47 N.	166 40 E.		5	[illegible]
12	53 40 N.	166 50 E.	Killed from schooner	1	[illegible]
16	53 55 N.	167 00 E.		8	[illegible]
17	55 55 N.	166 50 E.		21	[illegible]
18	53 30 N.	166 45 E.		25	[illegible]
19	53 40 N.	166 40 E.	Killed from schooner	1	[illegible]
21	53 35 N.	166 35 E.		15	[illegible]
22	53 35 N.	166 45 E.		55	[illegible]
23	53 50 N.	166 35 E.	Killed from schooner	2	[illegible]
24	54 00 N.	166 35 E.		62	[illegible]
25	53 50 N.	166 30 E.	Killed from schooner	1	[illegible]
26	54 00 N.	166 35 E.	.....do	1	[illegible]
30	53 35 N.	166 30 E.	.....do	2	[illegible]
31	53 30 N.	166 40 E.	.....do	3	[illegible]
			Total	630	

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates, of the schooner Maud S. on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Date.	Number of seals taken.	Latitude.	Longitude.
1892.		° ′	° ′	1892.		° ′	° ′
July 14	11	53 10 N.	166 10 E.	Aug. 14	2	54 43 N.	164 58 E.
15	10	53 33 N.	166 55 E.	17	15	56 48 N.	166 15 E.
21	10	53 33 N.	165 29 E.	18	8	56 35 N.	167 25 E.
22	12	53 12 N.	165 46 E.	19	2	55 39 N.	167 57 E.
23	7	52 49 N.	167 22 E.	21	1	53 48 N.	168 19 E.
26	1	53 24 N.	166 36 E.	22	7	53 22 N.	168 02 E.
27	57	53 24 N.	168 04 E.	23	114	52 51 N.	167 45 E.
28	99	53 21 N.	168 08 E.	25	16	53 46 N.	167 35 E.
28	14	53 33 N.	168 09 E.	26	16	52 44 N.	167 53 E.
Aug. 2	3	54 10 N.	167 11 E.	27	7	52 55 N.	167 34 E.
3	8	53 55 N.	166 45 E.	31	31	52 52 N.	167 38 E.
4	12	53 50 N.	166 59 E.	Sept. 4	12	53 15 N.	167 26 E.
5	40	53 44 N.	167 04 E.	5	30	53 14 N.	167 36 E.
6	41	53 35 N.	166 01 E.	6	1	53 01 N.	167 66 E.
7	71	53 33 N.	165 51 E.	7	34	53 06 N.	167 66 E.
8	3	53 35 N.	165 49 E.	10	9	52 31 N.	167 19 E.
10	24	54 11 N.	167 00 E.				
11	12	53 04 N.	166 40 E.	Total	745		
12	5	53 53 N.	165 14 E.				

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates of the schooner Vancouver Belle on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Date.	Number of seals taken.	Latitude.	Longitude.
1892.		° ′	° ′	1892.		° ′	° ′
uly 4	3	54 11 N.	168 52 E.	July 30	1	54 07 N.	167 00 E.
5	2	54 05 N.	167 15 E.	31	1	54 15 N.	167 00 E.
8	1	54 04 N.	167 00 E.	Aug. 1	13	54 04 N.	167 10 E.
9	18	54 12 N.	169 03 E.	2	1	54 10 N.	167 10 E.
10	2	54 16 N.	169 32 E.	3	13	54 20 N.	167 33 E.
13	3	54 13 N.	169 30 E.	4	5	54 12 N.	167 26 E.
14	22	54 10 N.	168 30 E.	5	14	53 54 N.	167 35 E.
16	1	55 25 N.	167 20 E.	6	24	54 10 N.	167 38 E.
17	1	55 40 N.	166 10 E.	7	31	54 13 N.	167 20 E.
20	1	55 16 N.	168 24 E.	8	1	54 20 N.	167 01 E.
25	8	55 28 N.	170 24 E.	10	3	54 20 N.	166 06 E.
26	2	55 09 N.	169 08 E.	11	3	54 15 N.	166 30 E.
27	8	53 56 N.	169 08 E.				
28	103	54 05 N.	167 35 E.	Total	296		
29	11	54 05 N.	167 35 E.				

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates of the schooner Beatrice (Vancouver) on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Total seals to date.
1892.		° ′	° ′	
uly 24	1	51 54 N.	168 56 E.	.....
25	3	53 17 N.	167 48 E.	.....
26	68	54 17 N.	167 40 E.	.....
27	112	53 54 N.	167 56 E.	.....
28	19	53 38 N.	167 30 E.	907
ug. 1	4	53 28 N.	167 01 E.	.....
2	15	53 29 N.	168 15 E.	.....
3	28	53 50 N.	167 18 E.	.....
4	28	53 23 N.	168 15 E.	.....
5	47	53 36 N.	167 34 E.	.....
6	75	53 26 N.	167 36 E.	.....
7	8	53 22 N.	166 07 E.	.....
9	12	53 45 N.	166 20 E.	.....
10	5	53 24 N.	165 52 E.	.....
11	7	54 07 N.	165 31 E.	.....
16	12	53 21 N.	168 37 E.	.....
17	15	53 18 N.	167 04 E.	.....
18	14	53 10 N.	167 21 E.	.....
21	9	53 36 N.	169 29 E.	.....
22	27	53 19 N.	169 00 E.	.....
23	5	53 29 N.	169 04 E.	.....
24	21	54 06 N.	168 17 E.	.....
25	1	53 32 N.	168 12 E.	.....
Total	596			

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates of the schooner Arietis on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Total seals to date.
1892.		° ′	° ′	
July 21	1	54 08 N.	169 00 E.	[illegible]
22	25	53 48 N.	169 30 E.	[illegible]
25	21	53 30 N.	169 00 E.	[illegible]
26	16	53 00 N.	168 45 E.	[illegible]
27	160	53 20 N.	169 00 E.	[illegible]
28	17	54 00 N.	168 45 E.	[illegible]
29	1	54 00 N.	168 55 E.	[illegible]
31	5	54 10 N.	168 30 E.	[illegible]
Aug. 1	3	54 00 N.	169 00 E.	[illegible]
2	5	53 45 N.	168 45 E.	[illegible]
3	13	53 40 N.	168 30 E.	[illegible]
4	118	53 20 N.	168 15 E.	[illegible]
5	154	53 20 N.	168 30 E.	[illegible]
7	16	53 40 N.	168 45 E.	[illegible]
8	3	54 00 N.	168 00 E.	[illegible]
9	4	54 00 N.	168 30 E.	[illegible]
10	3	53 45 N.	168 00 E.	[illegible]
18	14	53 00 N.	169 00 E.	[illegible]
22	25	52 30 N.	167 40 E.	[illegible]
24	40	53 00 N.	168 00 E.	[illegible]
29	6	53 00 N.	169 00 E.	[illegible]
Total	650			

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates of the schooner Agnes McDonald on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Total seals to date.
1892.		° ′	° ′	
July 26	18	52 38 N.	168 02 E.	[illegible]
27	97	52 48 N.	168 08 E.	[illegible]
28	26	52 49 N.	168 00 E.	[illegible]
Aug. 1	12	53 30 N.	167 35 E.	[illegible]
2	54	53 52 N.	167 05 E.	[illegible]
3	17	53 49 N.	167 02 E.	[illegible]
4	24	54 03 N.	166 17 E.	[illegible]
5	6	54 07 N.	165 05 E.	[illegible]
6	4	54 18 N.	165 45 E.	[illegible]
7	4	54 05 N.	166 35 E.	[illegible]
9	5	54 07 N.	167 15 E.	[illegible]
10	3	54 02 N.	167 42 E.	[illegible]
11	11	53 42 N.	165 37 E.	[illegible]
17	11	53 43 N.	168 02 E.	[illegible]
18	18	53 12 N.	165 25 E.	[illegible]
20	3	53 05 N.	166 10 E.	[illegible]
21	8	52 45 N.	166 58 E.	[illegible]
22	52	53 20 N.	167 42 E.	[illegible]
25	1	52 28 N.	166 44 E.	[illegible]
Total	374			

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates of the schooner Henry Dennis on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.
1892.		° ′	° ′
Aug. 1	1	56 37 N.	168 20 E.
3	13	56 40 N.	168 38 E.
4	40	56 27 N.	168 13 E.
5	108	56 20 N.	168 07 E.
6	26	56 37 N.	168 10 E.
7	1	56 43 N.	167 50 E.
Total	189		

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates, of the schooner Annie E. Paint on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.	Total seals to date.
1892.		° ′	° ′	
Aug. 3	5	52 55 N.	166 40 E.	569
4	3	52 32 N.	166 01 E.	572
5	24	53 04 N.	165 21 E.	596
6	46	52 30 N.	165 30 E.	642
8	53	52 47 N.	165 37 E.	695
12	15	53 00 N.	166 40 E.	710
17	8	53 02 N.	166 46 E.	718
19	33	52 59 N.	166 31 E.	751
21	8	52 48 N.	166 12 E.	759
22	26	52 58 N.	166 14 E.	784
23	48	52 59 N.	166 25 E.	832
27	32	52 58 N.	166 35 E.	864
31	13	52 01 N.	167 00 E.	878
Sept. 5	16	53 00 N.	167 30 E.	894
12	28	53 00 N.	165 58 E.	922
13	19	52 59 N.	165 40 E.	941
20	44	52 00 N.	169 11 E.	985
Total	421			

Extract of return showing the dates on which seals were taken, the number taken each day, and the noon position on each such dates, of the schooner W. P. Hall on her sealing voyage for the season 1892.

Date.	Number of seals taken.	Latitude.	Longitude.
1892.		° ′	° ′
July 21	6	54 25 N.	170 00 E.
24	5	54 35 N.	169 10 E.
27	59	54 30 N.	168 50 E.
Aug. 2	19	54 20 N.	168 40 E.
3	15	54 03 N.	168 55 E.
4	40	53 35 N.	168 40 E.
5	49	53 30 N.	169 00 E.
6	36	54 05 N.	168 30 E.
8	20	54 35 N.	168 55 E.
9	40	54 25 N.	169 00 E.
10	10	54 05 N.	168 35 E.
11	27	54 10 N.	168 55 E.
21	8	53 00 N.	169 35 E.
22	30	52 55 N.	169 00 E.
27	2	52 20 N.	168 30 E.
Total	366		

V.—CONCLUSIONS.

SUMMARY.

To gain a clear understanding of the fur-seal question, in so far as it relates to the Russian Seal Islands, it may be well to sum up the essential points as follows:

The topographical character of the rookeries on Bering Island and on Copper Island are essentially different. On the former the grounds are low and accessible, and the drives are unusually easy, involving but little hardship on the seals, even compared with the rookeries on St. Paul Island, Pribilof group. On Copper Island, however, the rookeries are situated at the base of high precipices, very difficult of access, and the drives, from the mountainous nature of the island, are as harsh and trying as it is possible to imagine.

Notwithstanding this difference in the topography, the conditions of seal life on the rookeries were practically alike on both islands previous to, during, and some time after my first visit to the islands in 1882–83. It is an indisputable fact that the seals were increasing markedly in number during that period on both islands.

Of late years the seals have been rapidly decreasing on both islands, the decrease corresponding to the same phenomenon on the Pribilof Islands, but taking place proportionately about five years later on an average.

When I again visited the islands, in 1895, I found the conditions of seal life on the rookeries had so changed as to radically differ on the two islands. On Bering Island, in addition to a marked decrease in killables, there was a notable scarcity of old bulls, while the decrease in breeding females was less apparent. On Copper Island, while the number of killables was small, sexually mature male seals were, on the contrary, plentiful, and at the same time the number of females had decreased enormously.

Prior to 1892 the Commander Islands seals had suffered but little from pelagic sealing in general and practically nothing from preying upon the feeding grounds of the female seals, at the very time when the Pribilof Islands sealing grounds were being rapidly exhausted.

Since 1892 the whole body of the pelagic sealing fleet has preyed, during the most precarious season of seal life, largely upon the female seals visiting the feeding grounds off Copper Island.

An unusual mortality of starving seal pups has not been observed until last year on Bering Island, but the natural conditions of the Copper Island rookeries are such as to make it easy to overlook such a fact.

The 30-mile zone stipulated in the Russian-British arrangement of 1893 has only put a stop to the raiding of the rookeries, but has been found utterly valueless as a protective measure against pelagic sealing.

The rookeries of the Commander Islands will become exhausted within a few years if the present conditions are allowed to continue much longer.

CAUSES OF THE DECREASE.

Three different causes, either of them alone, or in combination with the others, have been generally regarded as responsible for the undeniable decline of seal life on the seal islands of the Bering Sea and North Pacific Ocean, viz, excessive driving of the male seals, raids on the rookeries, and pelagic sealing. It may be well to inquire how each of these alleged causes applies to the conditions prevailing on the Russian islands.

It has been claimed that the driving of the male seals results in sapping their vitality and impairing their procreative powers, thus causing a double decline by shortening the life of the individual and causing a smaller number of pups to be born. I have elsewhere in this report discussed this question. Here it will suffice to simply inquire, How do the facts observed on the Commander Islands agree with this theory? I have already summarized the facts, but they will bear a brief repetition. On Bering Island the driving is so easy that even the black pups driven in flocks with the adults are uninjured; yet there was quite a deficiency in bulls, virile and otherwise. On Copper Island the drives are beyond comparison the hardest known anywhere; yet there was a surplus of exceedingly virile bulls; and still, if we may be allowed a comparison with the Pribilof Islands, we may add that the decrease in killables on Copper Island is of a much later date than the correspond-

ing decrease on the Pribilofs. Now, if the driving had had the slightest influence upon the numbers of the seals, how did it happen that the seals were increasing while it is a fact that the drives have never been easier, but if anything rather harsher? Nothing seems more clear and logical than this proposition, viz, that if the driving is the cause of the decline, we should expect the falling off in bulls to have taken place on Copper Island, and not on Bering Island; but the reverse is just the case. I am, therefore, compelled to absolve the driving of the responsibility for the decrease on the Commander Islands.

The contention that the occasional raids practiced on the rookeries by marauding schooners are materially to blame for the decrease has found but slight support, and the experience on the Commander Islands does not substantiate it. I have shown that the Commander Islands seals were increasing in spite of the numerous raids in the early eighties; I have also shown how the little rock of Robben Island has continued to yield killable seals in spite of an unparalleled history of raids. It is safe to say that the annual catch of the raiders of the latter island greatly exceeded that of the legitimate killing on shore; and yet the falling off in the yield is not greater than that of the other islands.

There remains the pelagic sealing. Up to 1892 there was no startling decrease of the female seals on the Commander Islands rookeries, while there had been for a couple of years some difficulty in getting the former number of killables. In 1892 the sudden invasion of the whole body of the pelagic sealing fleet upon the unprotected feeding grounds of the Copper Island female seals took place, followed by similar inroads in 1893 and 1894. The melancholy decimation of the female seals on the Copper Island rookeries as witnessed by me in 1895 can be directly traced to this preying upon the herd off Copper Island. The extension of the hunt to the Bering Island feeding grounds in 1895 explains easily the presence in great numbers of pups starved to death on the Bering Island rookery. The somewhat earlier falling off in killables is attributable to the increase in the winter and spring catch off Japan.

The simultaneous or sequential occurrence of the above facts and phenomena is evidently more than a mere coincidence. As cause and result they fit like a hand in a glove, and I have been unable to resist the force of the logic which places the blame for the decrease of the Commander Islands seals upon pelagic sealing, and upon pelagic sealing alone.

FUTURE PROSPECTS ON THE COMMANDER ISLANDS.

The Commander Islands seal herd, originally and at its best only half the numerical strength of the Pribilof herd, is being killed off so rapidly that in a season or two it must become utterly unprofitable to hunt them in the open sea. If the destruction is allowed to go on much further, it is feared that it will take a very long time before the rookeries can be to any degree restored, even under the most effective protection.

If, on the other hand, really protective measures could at once be instituted, I am of the opinion that it will be possible to repair the damage within a reasonable time. It may not be possible to bring back the palmy days of 50,000 skins a year, but it might yet be feasible to render the business profitable to the natives, the Government, and the fur trade.

This may to many appear as a rather optimistic view, but I base my opinion on the well-established fact of the quick recovery and rapid replenishing of the rookeries during the beginning of the lease of Hutchinson, Kohl, Philippeus & Co., as well as upon the wonderfully

recuperative powers of the herds as demonstrated in the history of Robben Island. A graphic demonstration of an estimated increase would bear out this opinion, but as being chiefly speculatory, and therefore outside the limits which I have endeavored to keep in this report, is here left out of consideration.

RECOMMENDATIONS.

The Commander Islands being outside the boundaries of our own country, recommendations by the present writer as to the protection and management of the fur-seal business may seem to be out of place. Perhaps, therefore, I ought to have called the following paragraphs suggestions rather than recommendations. The friendly cooperation shown by the Russian authorities, however, has led me to give these, my personal opinions, a more definite form.

In the first place, any protection to be effective must be established by international agreement between all the powers directly interested, viz, Russia, Japan, Great Britain, and the United States. Separate action is apt to be disastrous. It has thus far not only resulted in protective regulations which do not protect, but the English-American modus vivendi of 1892 was unquestionably the beginning of the ruin of the Commander Islands rookeries.

As to the measures to be recommended, it may at once be stated that only radical and total prohibition can be effective. A short period of complete stoppage of sealing will produce more good than three times as long a period of partial protection. The recent history of fur-seal protection has shown the utter failure of halfway measures.

The special recommendations which I should be inclined to make are as follows:

(1) Total and absolute prohibition of pelagic sealing in the North Pacific Ocean and Bering Sea at all seasons for at least six years.

(2) After that time total prohibition at all seasons in Bering Sea and Pacific Ocean west of 175° east longitude and north of 52° north latitude, or, if preferable, within a zone of 150 nautical miles from the islands.

(3) Total prohibition of killing on land for one year.

(4) After that time bachelor seals to be taken on land not later than August 1.

The total prohibition of pelagic sealing for six years is thought to be sufficient to restock the rookeries with females to the extent that at least an equilibrium of the herd may be attained.

One year's total prohibition on land is thought sufficient to furnish enough males to start with for the increasing number of females. It is also supposed that there will be enough males left every year from those not hauling out until August 1. The reason why I do not advocate a longer prohibition of killing on land than one year is that I regard a large surplus of mature males on the rookeries beyond the actually indispensable number for the impregnation of every female as a check to the increase of the herd. The herds on the Commander Islands, as well as on the Pribilof Islands, must have been practically at equilibrium at the time of their discovery by man, and I attribute this solely to the fact that there must have been a superabundance of males sufficient to prevent an increase. The killing off of the superfluous number of males must inevitably result in a rapid increase of the herd. Similar conditions exist among other polygamous animals which have been known to increase rapidly by the killing off of a great number of the males.

The natives would have to be supported for one year, but that undertaking ought not to be so expensive on the Commander Islands as it might appear at first glance. The first thing to be done would be to exterminate the sledge dogs on Bering Island. They eat more seal meat and fish than the natives, and are a general nuisance. A few Kamchatka horses would do much better service than all the dogs, and, supplemented with a few more good boats on the island, would suffice for transportation and travel. The Bering Islanders, having nothing else to do during the whole year of the prohibition, could easily put up an extra quantity of dried salmon at Saranna, which, with the quantity saved from the dogs, would go a long way toward the feeding of the Copper Islanders. The latter, having still the sea otters, could well afford to pay the Bering Islanders something for the fish. Besides, it might be so arranged as to have fox hunts on both islands during the year of the "zapuska," or prohibition.

There seems to be no good reason why the Governments in question should not be able to agree upon some such scheme of protection, which appears to be both equitable and effective. However, should both reason and self-interest prove unavailing, and it should be found impossible to effect a satisfactory protection, the question naturally arises, What is to be done with the remaining seals?

There would certainly be no reason for limiting the number of male seals to be taken on land. The restriction placed upon the killing on the islands under the present conditions results in nothing but a one-sided attempt at preservation of the rookeries for the benefit of the pelagic sealers.

As for a total extermination of the herd, simply to prevent the pelagic sealers from getting any more seals, it may well be remarked that the measure seems well-nigh superfluous, as there will soon be no seals for the pelagic sealers to kill. A perusal of the chapter on Robben Island might raise the question whether it would be effective.

However, the issue is not an actual one in the present case; for, so far as I know, the Russian authorities are not publicly discussing the possibilities of such a step. At the same time it should not be forgotten that Russia's position is more advantageous than that of the United States in this respect, as it is bound by no such moral obligations, much less legal ones, as would have confronted her had she ever submitted the main points in the case to international arbitration.

LIST OF ILLUSTRATIONS.

[The maps and photographs are by the author unless otherwise stated.]

Plate No.

1.—Map of western portion of Bering Sea. Solid red line is 30 miles from shore of Commander Islands; broken red line 150 miles from same. Figures in red indicate the noon positions of 11 schooners and the number of seals taken during the preceding twenty-four hours.

2.—Isotherms of the surface of the sea for August 16. (From Makarof's "Vitiaz i Tikhi Okean," pl. VII, with the permission of the author.) This map also serves as a general map of the region, showing the relative position of the islands mentioned in this report.

3.—Temperatures and specific gravity of the water in Bering Sea between Kamchatka and the Commander Islands, July 29 to August 2, 1888. (From Makarof's "Vitiaz i Tikhi Okean," pl. VIII, by permission of the author.) *Vitiaz* station No. 107, July 29, 4 p. m.; 108, July 29, 6.40 p. m.; 109, July 30, 9 a. m.; 110, July 30, 8.15 p. m.; 111, July 31, 8.37 p. m.; 113, August 2, 4.30 p. m. Temperatures in centigrades; depths in meters.

Plate No.

4.—Map of Bering Island. From surveys by the author in 1882–83 and 18

5.—Maps of Copper Island. From surveys by the author in 1882–83 and

6.—Map of straits between Robben Island and Cape Patience, Sakhali a plan by Lieutenant Schultz, I. R. N., 1885.

Plan of Robben Island (Tinleni Island). From a plan by Lieutenant I. R. N., 1884.

7.—Map of North Rookery, Bering Island. Distribution of seals, 1882.

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25*b*.—Village at North Rookery, Bering Island. To the left the company in the center the kossak's house; in the background the yurts, or s of the natives (the new village). From salt house, August 13, 1895.

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30.—South Rookery, Bering Island. Females and pups. From photographic station No. 2. August 17, 1895, noon.

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32*a*.—Salt house, South Rookery, Bering Island. Nikanor Grigorief, the native overseer. September 9, 1895.

32*b*.—Waterfall at South Rookery, Bering Island.

33.—Preobrazhenskoye village, Copper Island, looking west. In the background, Pestshani Mys, the tops being hidden in the fog, and the company's steamer, *Kotik*, at anchor. The nearest light-painted house is the schoolhouse; the one farther back is the dwelling and office of the assistant administrator; the dark houses to the right of it are the company's store, magazines, and dwelling house. July 28, 1895.

34*a*.—Karabelni village, Copper Island, from the beach at mouth of river. August 12, 1895.

34*b*.—Glinka village, Copper Island, from the hill behind it. August 7, 1895.

35.—Glinka village, Copper Island, from the beach. In the middle ground the salt houses to the left, the government's house to the right. August 11, 1895.

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36*b*.—Same. Seal skins bundled, ready for shipment.

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38*b*.—Karabelni Stolp, Karabelnoye Rookery, Copper Island. From bluff photographic station No. 1. August 2, 1895, 9.15 a. m.

39.—Karabelnoye Rookery, Copper Island, looking west toward Karabelni Stolp, from photographic station No. 3. August 1, 1895, 11 a. m.

40.—Karabelnoye Rookery, Copper Island, looking east toward Vodopadski Mys, from photographic station No. 2. August 1, 1895, 10 a. m.

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42.—Karabelnoye Rookery, Copper Island, looking west. Pencil sketch by the author, July 3, 1883, from photographic station No. 3, to show distribution of breeding seals as compared with my photograph of 1895, from same standpoint, pl. 39.

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44*a*.—Bolshaya Bukhta, Karabelnoye Rookery, Copper Island. From reef at extreme end of Karabelni Stolp. The snow patch at the beach is the same as the one seen near the lower left-hand corner in pl. 40. From a photograph by Mr. Grebnitski, August 1, 1895, 9.45 a. m.

44*b*.—Drive steps, Stolbovaya Bukhta, Karabelnoye Rookery, Copper Island. August 1, 1895. From photographic station No. 5.

45.—Drive steps and waterfall, Vodopad, Karabelnoye Rookery, Copper Island, August 2, 1895.

46.—Palata, Copper Island, seen from Zapadni, to show character of beach. Photograph by Mr. Grebnitski, August 7, 1895.

47.—Palata beach, Glinka, Copper Island, showing the character of the reef. Photograph by Mr. N. B. Miller, of the U. S. Fish Commission S. S. *Albatross*, June 4, 1892.

48.—Palata Rookery, Copper Island, from a rock off the rookery. Looking up the gully to the right, Palata; mountains in the background hidden in the fog. August 2, 1895, 2.30 p. m.

49.—Palata Rookery, Copper Island, from the same point as pl. 48, looking toward Sabatcha Dira. Top of mountains hidden in the fog. August 2, 1895, 2.30 p. m.

50.—Palata Rookery, Copper Island, from nearly the same point as pl. 55, looking down the gully toward Karabelni. In lower left-hand corner, slope of Palata; in upper right-hand corner, Zapadni and Pestshani Mys. August 7, 1895, 12.30 p. m.

51.—Palata Rookery, Glinka, Copper Island, August 7, 1895, 9.40 a. m. From hill north of Palata, on map (pl. 14) marked 806 feet.

Plate No.

52.—Palata Rookery, Glinka, Copper Island. From a sketch by the author, July 15, 1883. Standpoint same as my photograph of 1895 (pl. 51) to show distribution of seals.

53*a*.—Palata Rookery, Glinka, Copper Island. Photograph by Colonel Voloshinof, 1885. Standpoint a little farther to the right and lower down than my sketch of 1883 (pl. 52) and my photograph of 1895 (pl. 51).

53*b*.—Zapadnie Rookery, Glinka, Copper Island. Photograph by Colonel Voloshinof, 1885. For comparison with pl. 54*a* as regards distribution of breeding seals.

54*a*.—Zapadnie Rookery, Glinka, Copper Island. From same point as pl. 51 (hill on map 14 marked 806 feet) looking west. The extreme promontory in the background to the left is Vodopadski Mys, then follow Lebiazhi Mys and Pestshani Mys. August 7, 1895.

54*b*.—Urili Kamen Rookery, Glinka, Copper Island. Looking from Peresheyek toward Pestshani Mys, which is hidden in the fog. Breeding seals among the stones in the foreground. August 3, 1895, 10 a. m.

55.—Zapalata Rookery, Glinka, Copper Island. From base of crest of Palata (just beyond watchhouse), looking toward Stolbi. August 7, 1895, noon.

56.—Zapalata Rookery, Glinka, Copper Island. From base of crest of Palata (same standpoint as pl. 55), looking toward the extreme end of Palata. August 7, 1895, noon.

57*a*.—Zapalata Rookery, Glinka, Copper Island. From a photograph by Colonel Voloshinof, 1885. Standpoint exactly the same as my photograph of 1895, pl. 56, with which it should be compared for distribution of the seals.

57*b*.—Sikatchinskaya Bukhta, Glinka, Copper Island, seen from the rocks off the rookery. Photograph by Mr. Grebnitski, August 2, 1895.

58*a*.—Driveway from Zapadnie Rookery, Glinka, Copper Island. Rainy morning. August 8, 1895, 7.30 a. m.

58*b*.—Driveway up from Pestshani hauling-grounds, Glinka, Copper Island. August 2, 1895.

58*c*.—Pestshani salt-house, near Glinka village, Copper Island. August 4, 1895.

59*a*.—Hutchinson, Kohl, Philippeus & Co.'s steamer *Aleksander II*. From a photograph by H. W. Domes, Oakland, Cal.

59*b*.—Schooner *Bobrik*, Capt. D. Grœnberg, in the harbor of Petropaulski. The guard ship of Robben Island, belonging to the Russian Seal Skin Company. August 27, 1895.

59*c*.—Reduced copy of Choris's picture of fur seals on the rookery at St. Paul, Pribilof Islands. Voy. Pitt. aut. Monde, pl. xv.

60.—Salmon weir, "Zaporr," across the river at Saranna, Bering Island. July 20, 1895. The weir is full of silver salmon.

61*a*.—Saranna village, west half, Bering Island. The salmon weir in the foreground. July 20, 1895.

61*b*.—Saranna village, east half, Bering Island. In foreground scaffolding with salmon hung up to dry. July 20, 1895.

62*a*.—Native dragging along a seal which is too tired to move. Drive from Zapadnie, Glinka, Copper Island. August 8, 1895, 8.45 a. m. Drizzling rain.

62*b*.—Baby skin-carrier. Same drive.

63*a*.—Salt-house at Popofski, near Karabelni village, Copper Island. August 12, 1895.

63*b*.—Seals sliding down the last embankment, Glinka village, Copper Island. Drive, August 8, 1895.

64.—Dead seal pups in windrows, Reef, North Rookery, Bering Island. September 16, 1895, 8.15 a. m.

65*a*.—Petropaulski Harbor, Kamchatka, from hill behind the town. In the background, on the south side of Avatcha Bay, the volcano Velutchinskaya Sopka. The men-of-war, the British cruiser *Porpoise* (white) and the Russian transport *Yakut* (black), off the Russian Seal Skin Company's wharf. August 26, 1895.

65*b*.—Petropaulski, Kamchatka, from the Russian Seal Skin Company's wharf. In the background the volcano Koriatskaya Sopka. The vessel anchored in the stream is the Russian transport *Yakut*. September 2, 1895.

66*a*.—The Russian Seal Skin Company's wharf, magazines, and steamer *Kotik*, Capt. C. E. Lindquist, at Petropaulski, Kamchatka. September 4, 1895.

66*b*.—Headquarters of the Russian Seal Skin Company, Petropaulski, Kamchatka. September 2, 1895.

APPENDIX.

By DAVID STARR JORDAN and GEORGE ARCHIBALD CLARK.

REPORTS OF TOWNSEND AND TRUE, 1893–1895.

The following notes have been prepared at the request of the Secretary of the Treasury:[1]

TOWNSEND'S REPORTS.

Page 455: Mr. Townsend here ascribes the death of the pups found at the angle of the sand beach of Tolstoi to the traditional "surf nip." Our observations showed 230 dead pups in the same locality in 1896. On examination, however, they were found to have been dead upward of two or three weeks, being rotten. As they had to our knowledge been thrown up by the waves within twenty-four hours they could not have drowned. When afterwards Tolstoi rookery was entered to make the count of dead pups, the rocky beach was found to be full of dead bodies. Those found on the sand beach were simply the lowest line of dead bodies which had been washed out from the rookery front by the heavy gale and deposited on the sands at the foot of the bay. Most of them lost their lives through the parasitic worm, *Uncinaria*.

Page 456: The 500 pups here noted are the same as those referred to in the preceding note. The reference made to similar pups, about 200 in number, on Reef rookery is not plain, as no definite locality is given. We found in 1896 33 dead pups on Zoltoi sands, which had been washed over from the neighboring shores of Gorbatch rookery. They were of the same sort as those on Tolstoi, and similar "windrows" of dead bodies were seen on all the sand beaches adjacent to rookeries.

Page 463: It must be noted in connection with this count of 9,000 dead pups here credited to starvation that at the time it was made the early mortality due to *Uncinaria* and trampling was not understood. A certain proportion of these early dead are evidently included in the enumeration; but owing to the fact that the count was made on the 13th of September, whereas the deaths from starvation run for fully a month later, it is still an underestimate.

Page 484: The estimate of seals here given by Mr. Townsend is based on the supposition that practically all the animals were in sight at the time when the counts were made. As we now know, less than half of them were present, and consequently this estimate must at least be doubled. The percentage of pups (62 to 100 cows) here cited by Mr. Townsend to prove that "the number of absentees was unimportant"

[1] See prefatory note to Volume I.

has another meaning, namely, that the time when his counts we (July 9) the rookeries had as yet not reached their maximu the investigations of 1897 show falls about July 15. Even at of their maximum population still only about half the cows are as counts of pups made in August proves. At that time the p everywhere found to be practically twice as numerous as were in the height of the season.

Page 485: The total here given for Kitovi rookery by Mr. T is 2,218 cows in 119 harems. On page 551 Mr. True, under date, gives the total as 2,640 cows in 145 harems. For the p Tolstoi rookery counted Mr. Townsend gives 1,539 cows in 113 Mr. True (on p. 551) gives 1,624 cows and 107 harems for the sa A difference of 2 harems and 48 cows is shown by the publishe of Lagoon rookery.

It is not stated whether the counts were made simultaneous There is no record of any attempt to remove or reconcile th ences. We can only regret that these results, without doubt and conscientiously made, should be vitiated by seeming disag which could easily have been removed by recounting the together. In any event one or the other of the counts should b accepted and the other rejected. The discrepancies between t doubt on both.

Page 486: The total of 75,000 breeding females here taken a ing point in the subsequent calculation is, as has already bee a very great underestimate, representing less than half the act ber of females. This, however, does not affect the relative va calculation. As to the calculation itself, it contains the fatal assuming virtual immortality for the seals. Mr. Townsend say losses through natural causes, such as old age, injuries receiv rookeries, killer whales, etc., is probably unimportant." We know just what the loss through killers and the storms at sea we do know that such loss is great and that the young are sub further loss on the rookeries through the parasitic worm *Uncina* to the loss through old age, we can not be absolutely certain b lack of definite information as to the age attained by the breed If, however, we assume an average age for the female of 13 y would give her a breeding age of 10 years, and would involve t from old age alone of 10 per cent of the herd of breeding fema year. If the average age is greater or lower it would simply or diminish the loss, but a great and positive loss from old a remain with the fur seal as with any other animal. This loss, a all others, are ignored in Mr. Townsend's calculation of the which must result through protection from pelagic sealing.

It may be noticed that as deaths from old age very rarely land, it must be that all decrepit animals are swallowed up by

Page 487: It is not necessary to repeat here what has been s where regarding this estimate of starved pups. The exten earlier loss through other causes was not understood in 1895. be said, however, that inasmuch as more than 30,000 females the fall of this season killed in Bering Sea, the total here ref of 28,000 pups, though containing a certain proportion of the deaths, still falls below the actual number, as starvation as a death had not at the time of the enumeration fully run its cou

Page 488. The criticisms here implied of the methods of lan are not specific enough for answer. Our views on this subject ha fully expressed in connection with Mr. Elliott's 1890 report, w theory of injury through land killing is elaborately given. M

send's recommendation that all animals driven be killed would be valid if it were true that injurious results follow the driving; but as the history of the herd and especially the investigations of the past two seasons show that the fears regarding the effects of land killing are groundless, the recommendation may be dismissed as unnecessary.

TRUE'S REPORT.

Page 549: Mr. True's statements regarding the death of pups is probably based wholly upon a cursory examination of the rookeries from the outside. Under such conditions few dead can be seen, and the estimate here given of 150 is a natural one. A similar estimate could conscientiously have been made in 1896 as the result of our inspections prior to August 1. When, however, at a later date the rookeries were entered, the animals driven off, and a close inspection and count made, the total number of dead was found to exceed 11,000. Had such an inspection been made in 1895 a still greater number of dead pups would undoubtedly have been found.

Page 551: We have already referred to the discrepancies which exist between the counts here given by Mr. True and those previously recorded by Mr. Townsend for the same rookeries and the same dates.

Page 553: This complete estimate of breeding seals may be contrasted with the actual total of 65,239 or a maximum of 75,000 given by Mr. Townsend on page 484. Both estimates must first be doubled to account for absent cows, and even then they fall below the actual facts because of the early date at which they were made. These elements of confusion render the estimates of 1895 of little practical value as a whole. But it is only fair to say that Mr. True himself attached to his figures only the value of an approximation, and assigns as their chief use "the elimination of fanciful estimates of the seals." They show, on the one hand, that there were not and never have been "untold millions" of them, nor have they yet by indiscriminate slaughter at sea been reduced to "a few thousands."

BRICE: 1894 "OBSERVATIONS ON THE HABITS OF THE FUR SEAL."

Page 609: This writer assumes that the sole determining cause of the movements of the fur seal is to be found in the temperature of the water, under the control of which the animals "merely obey the laws which nature has provided to enable them to find their way to distant parts of the ocean."

No record is given of any observations which would show in what way or in what degree changes in temperature control the fur seal's movements. As a matter of fact, no such observations were made, and the paper contains no matter of any kind which throws light on the nature of the migratory instincts or habits of the fur seal.

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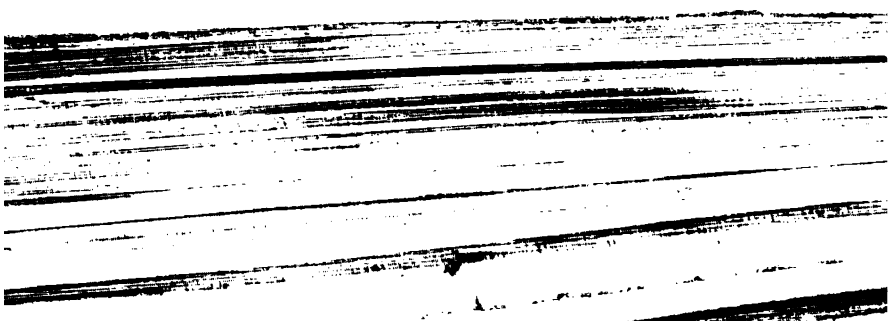

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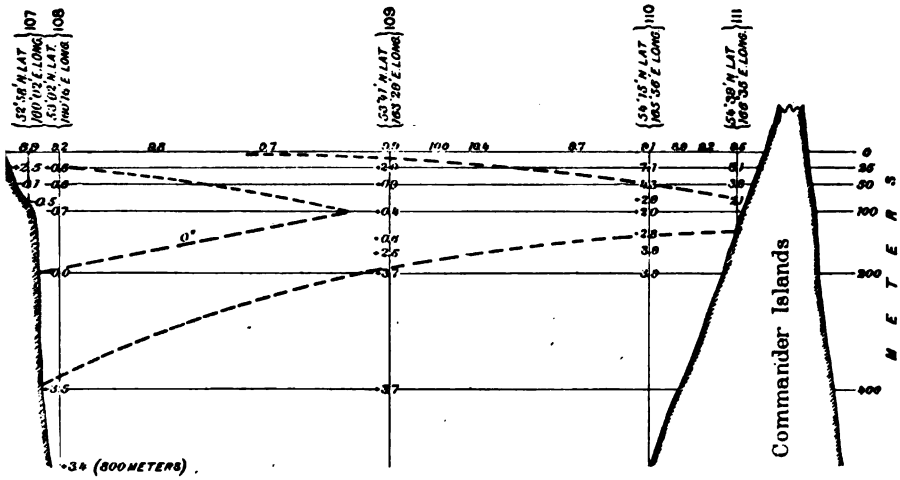

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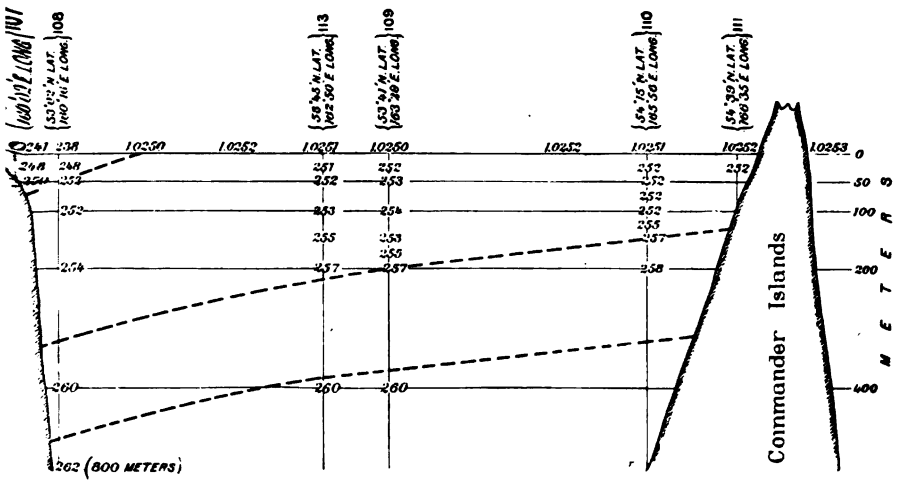
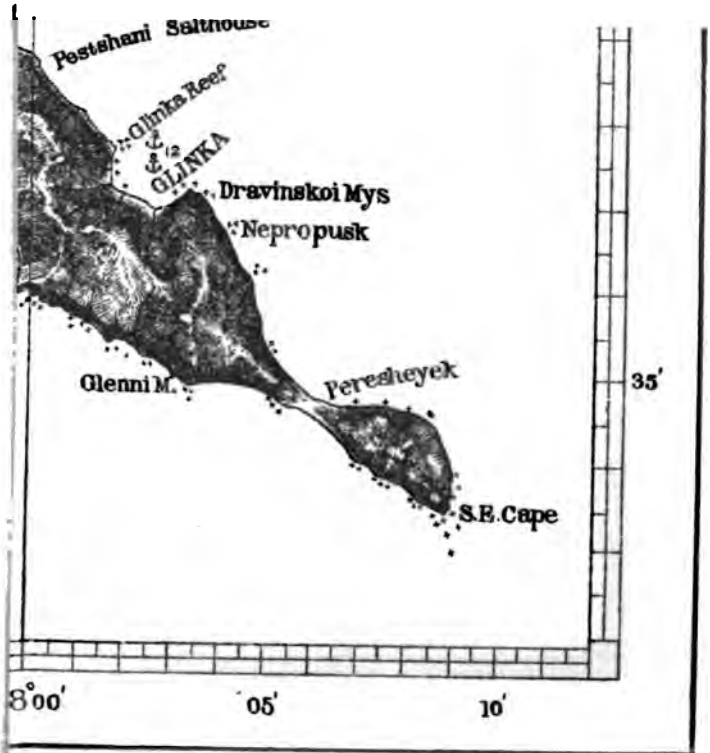


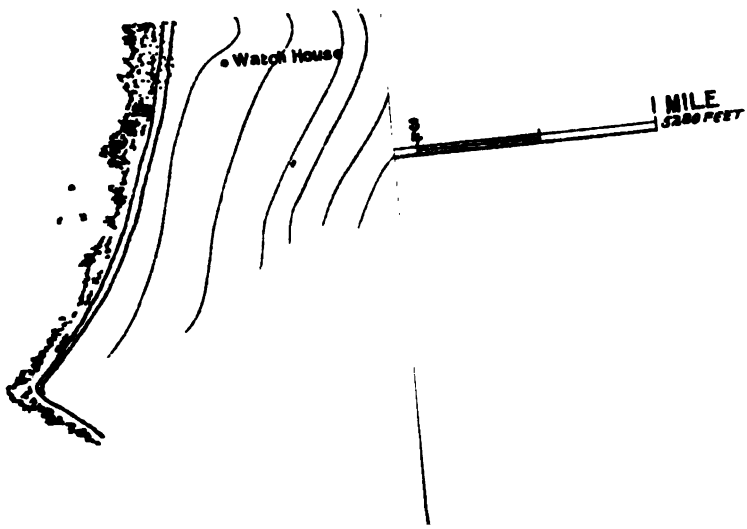
IPERATURES AND SPECIFIC GRAVITY OF THE WATER IN BERING SEA BETWEEN KAMCHATKA AND THE COMMANDER ISLANDS, JULY 29 TO AUGUST 2, 1888.

(From Makarof's "Vitiaz i Tikhi Okean," Pl. VIII, by permission of the author.)

z" Station No. **107**, July 29, 4 p. m.; **108**, July 29, 6.40 p. m.; **109**, July 30, 9 a. m.; **110**, July 30, 8.15 p. m.; **111**, July 31, 8.37 p. m.; **113**, August 2, 4.30 p. m.

Temperatures in centigrades: depths in meters.


Postshani Salthouse
Glinka Reef
12
GLINKA
Dravinskoi Mys
Nepropusk
Glenni M.
Peregheyek
S.E. Cape
35'
8°00'
05'
10'


Watch House
1 MILE
5280 FEET

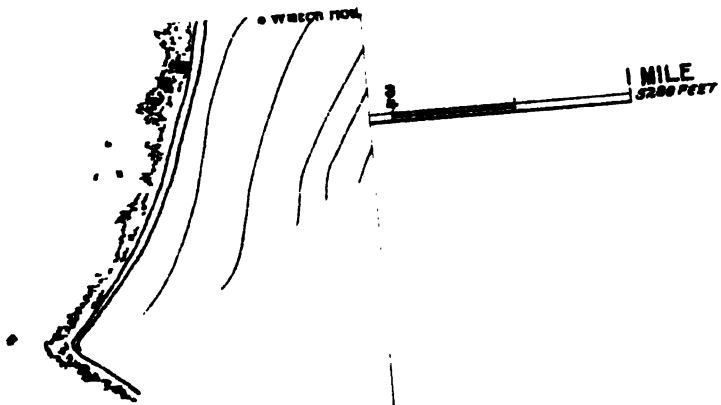

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PLATE IX.

INDEX CHART
Killing Grounds
Salt House
Dwelling
Boat Landing
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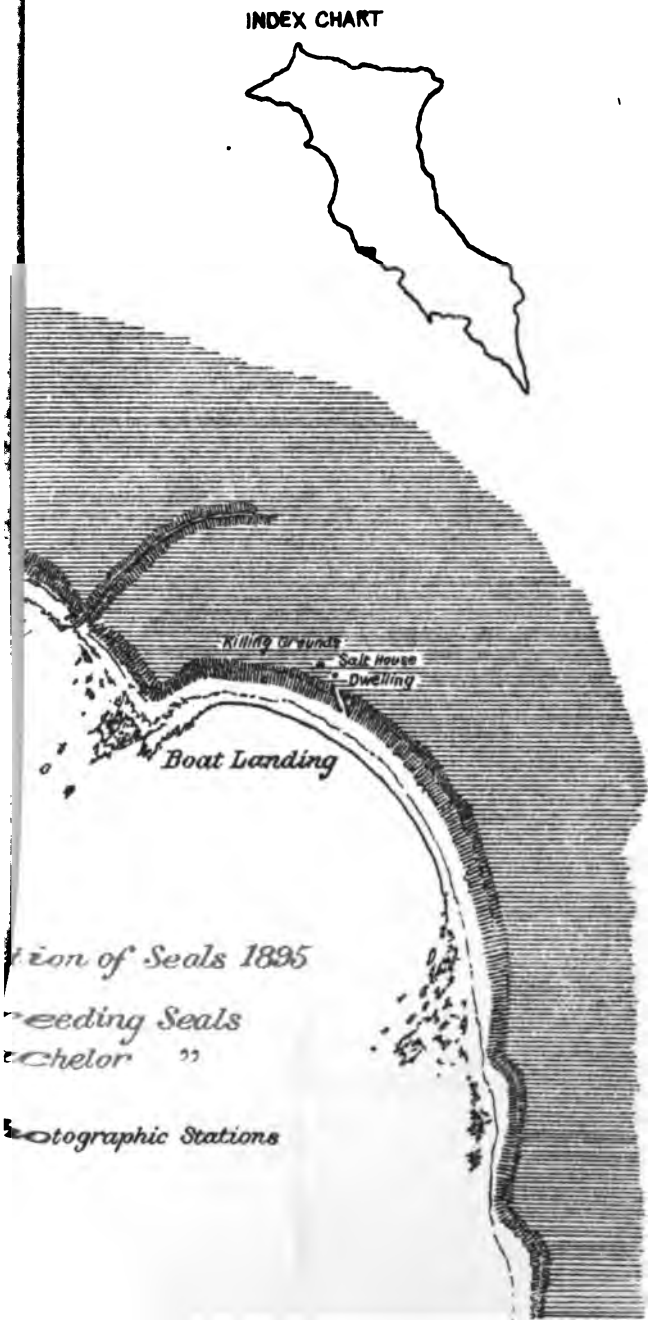
achelor "
Photographic Stations

PLATE X.


INDEX CHART
Killing Grounds
Salt House
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Boat Landing
ion of Seals 1895
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PLATE XI.

MAP
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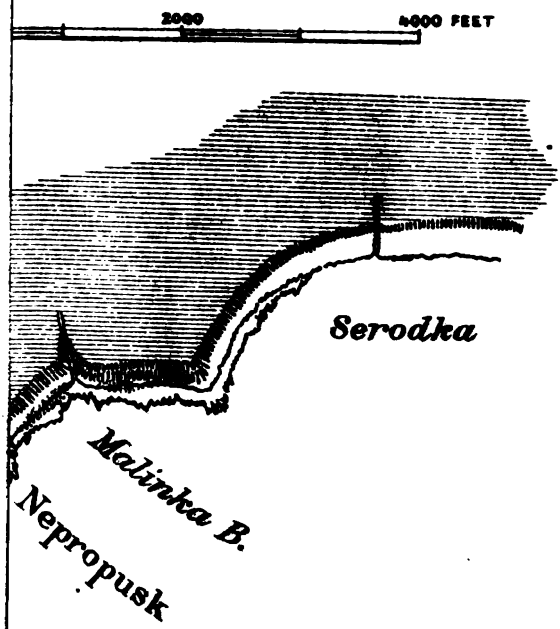
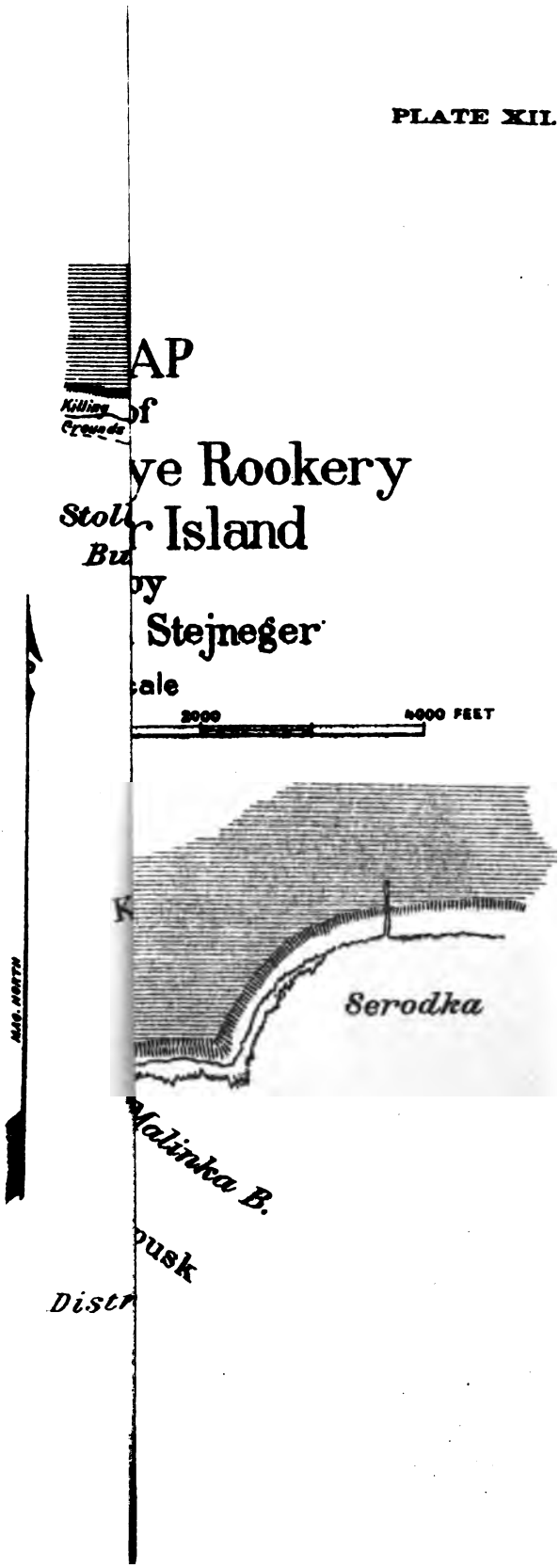


PLATE XII.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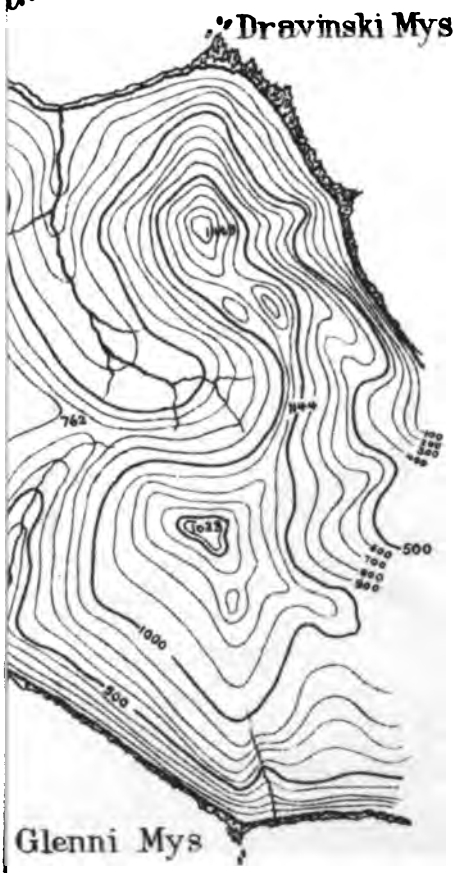
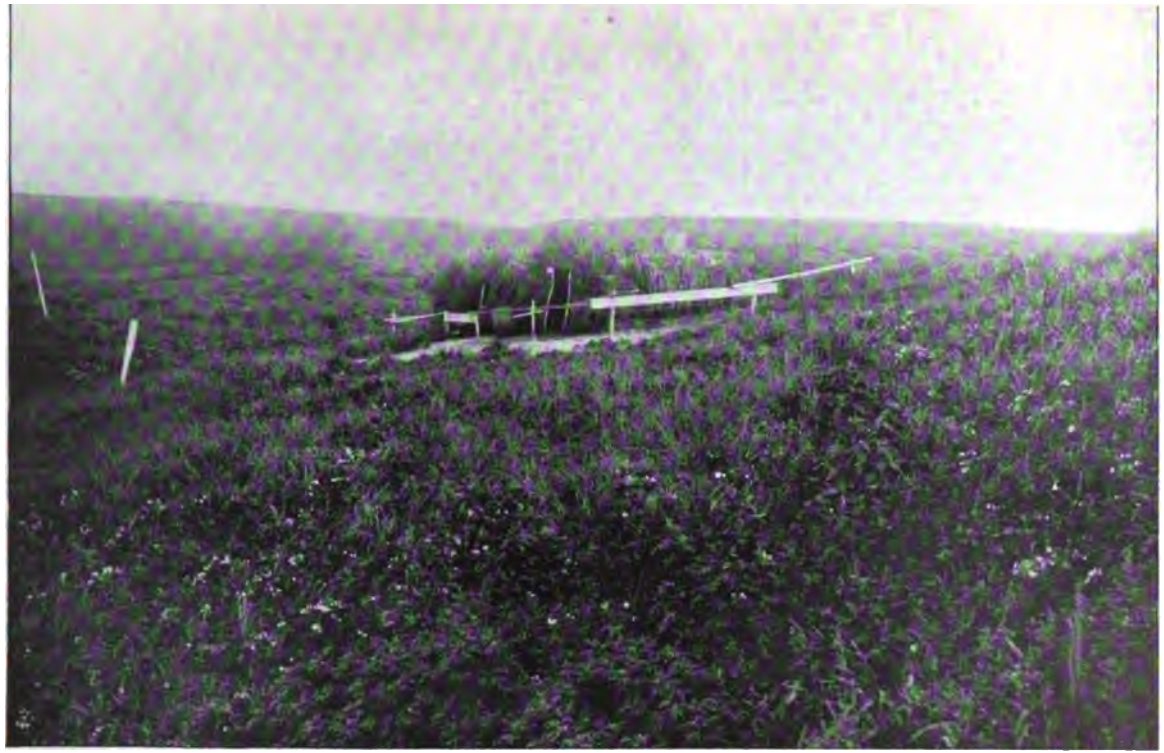


1

PLATE 15.

a.—*Heracleum lanatum*, NORTH ROOKERY, BERING ISLAND.



b —YURT, OR SOD HUT, NIKOLSKI, BERING ISLAND.

PLATE 16.

a.—WOODEN FRAME OF YURT, NORTH ROOKERY VILLAGE, BERING ISLAND.

b.—KAMCHATKAN CATTLE, BERING ISLAND.

a.— NIKOLSKI VILLAGE, BERING ISLAND.

b.—NEW SCHOOLHOUSE AND GOVERNOR'S OFFICE, NIKOLSKI, BERING ISLAND.

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PLATE 19.

a.—REEF AND SIVUTCHI KAMEN, NORTH ROOKERY, BERING ISLAND, FROM SLEDGE ROAD.

b.—SAME FROM DRIVEWAY AT LOWER END OF KILLING-GROUNDS.

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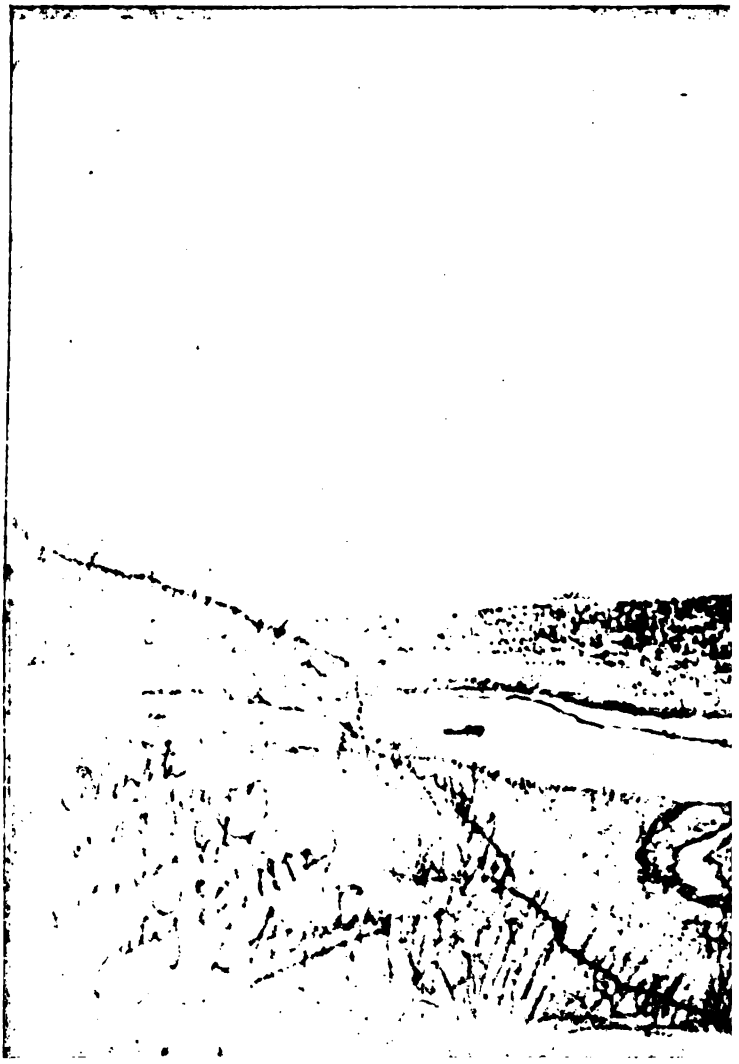
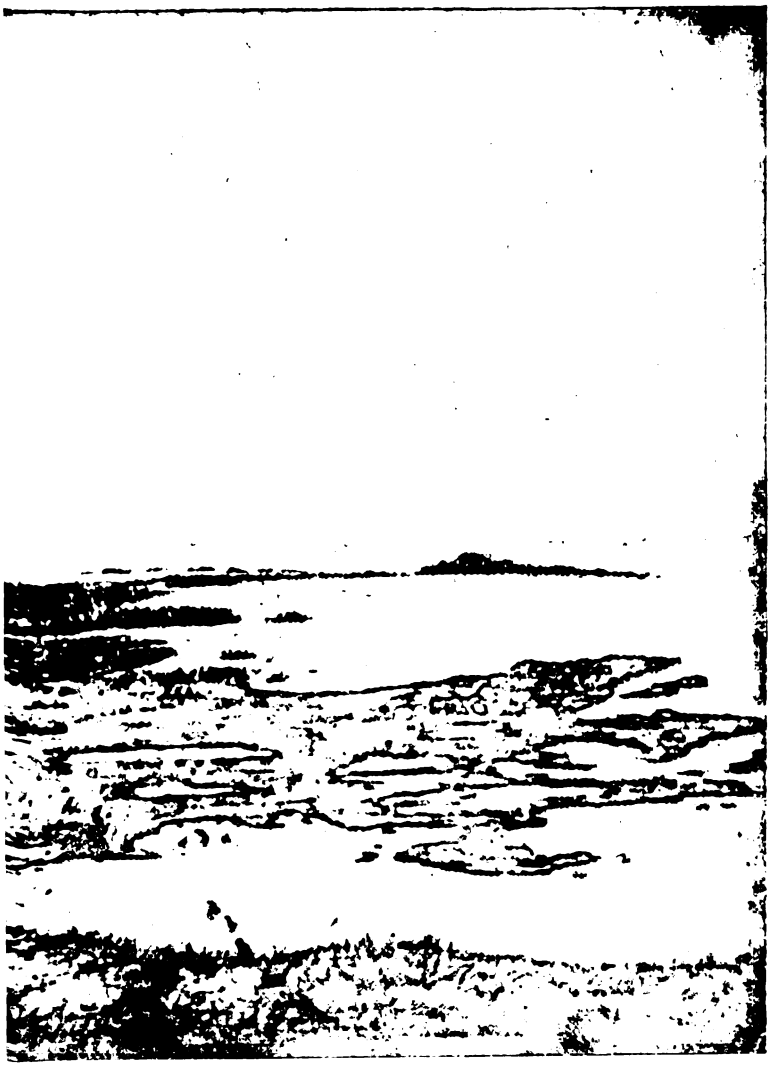


REEF AND SIVUTCHI

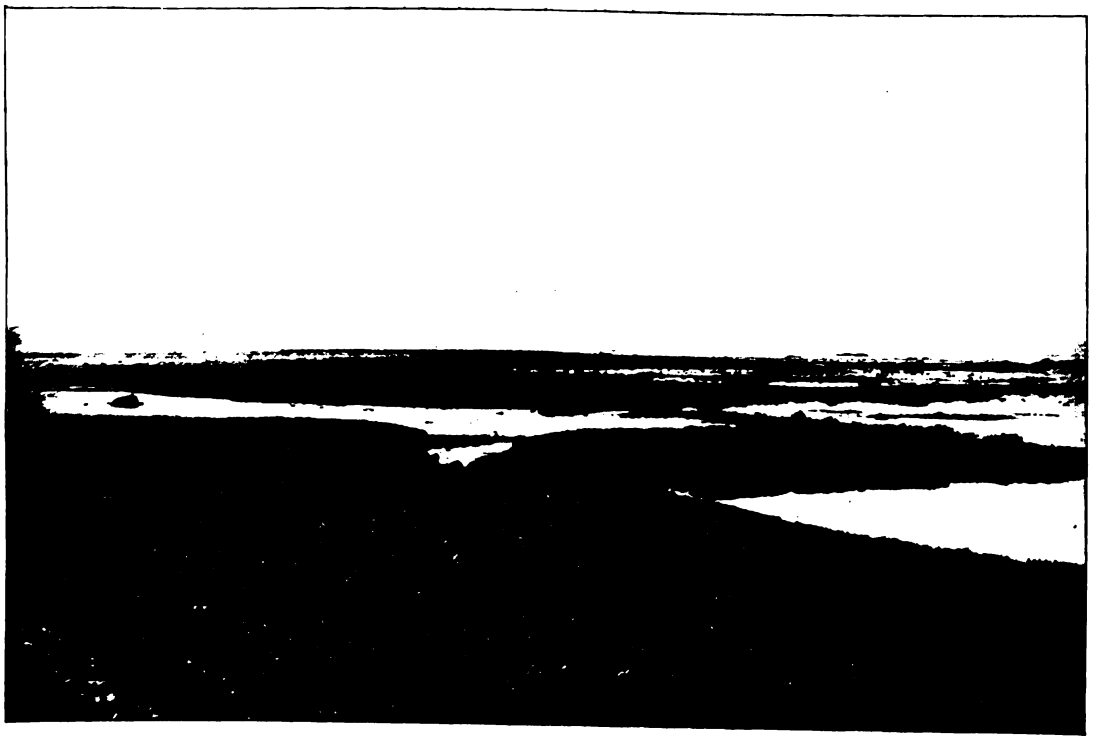
Pencil sketch by the a

PLATE 20.

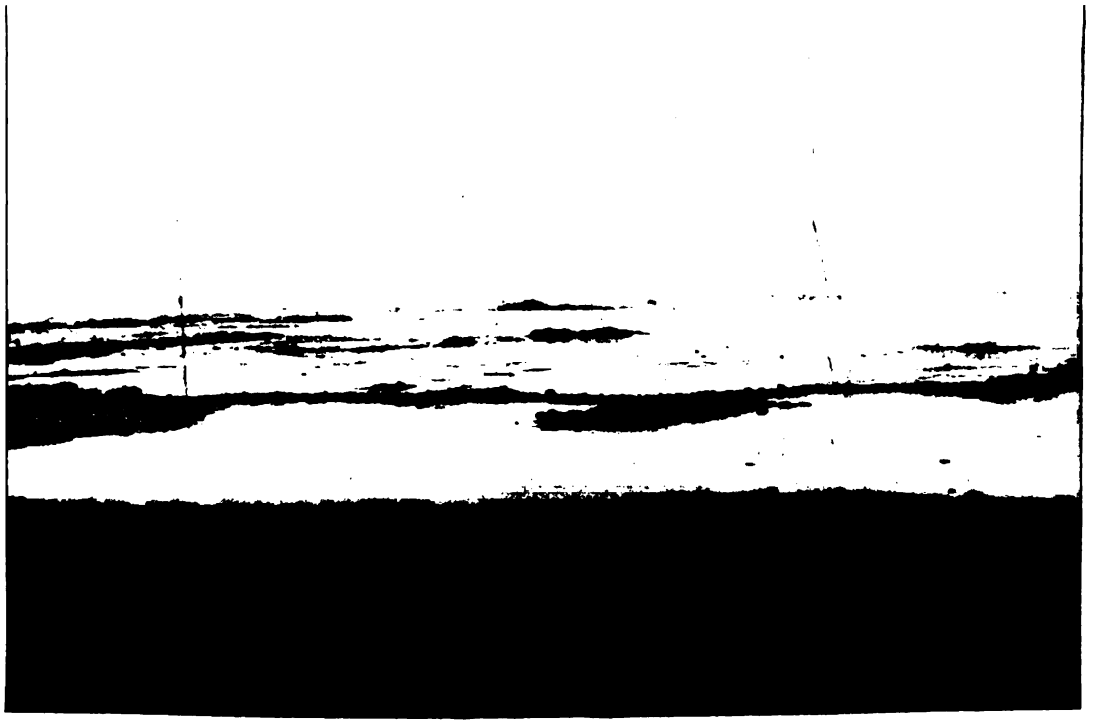


KERY, BERING ISLAND.
show distribution of seals.

PLATE 21.



a.—Western half.



b.—Eastern half.

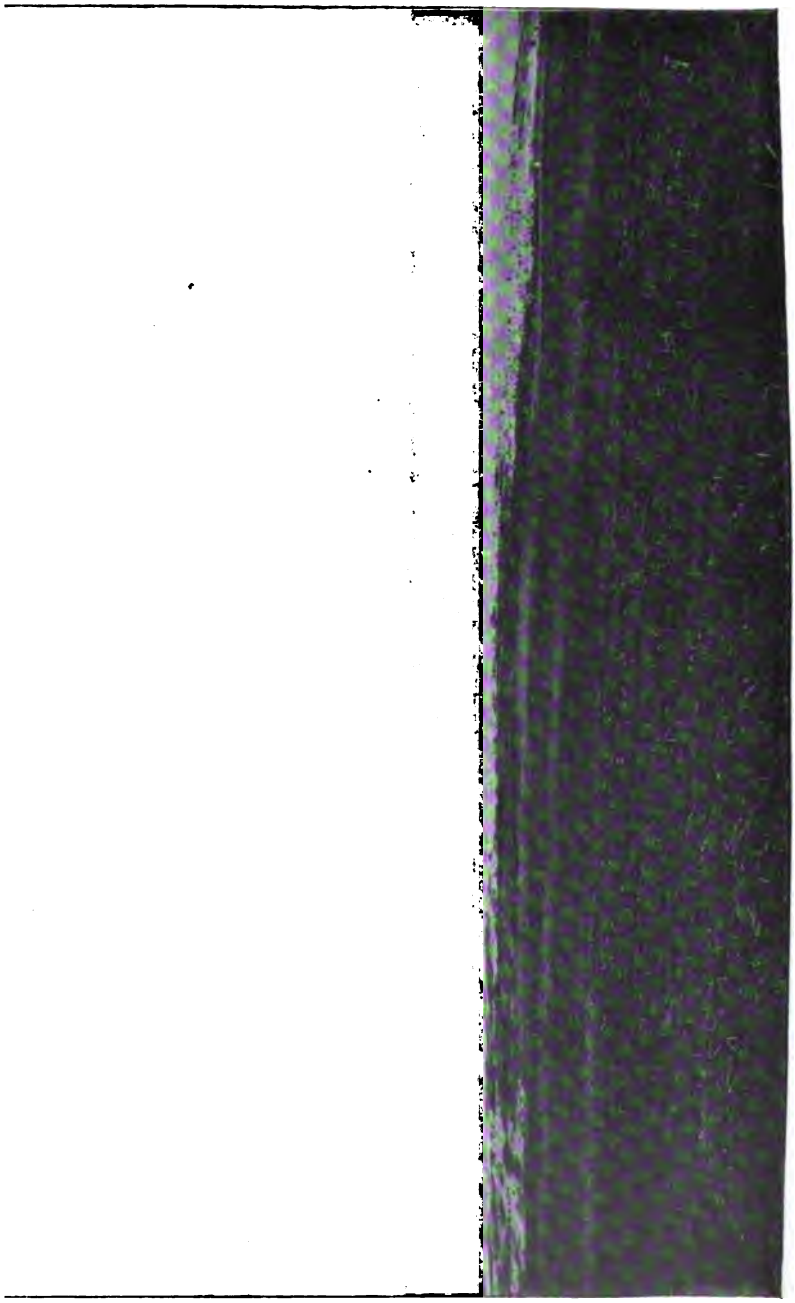
REEF AND SIVUTCHI KAMEN, NORTH ROOKERY, BERING ISLAND, JULY 15, 1895, TO SHOW DISTRIBUTION OF SEALS.

b.—Eastern half.

REEF AND SIVUTCHI KAMEN, NORTH ROOKERY, BERING ISLAND, JULY 15, 1895, FROM DRIVEWAY.

a.—Western half.

PLATE 23.



KISHOTCHNAYA, NORTH ROOKERY, BERING ISLAND, JULY 16, 1895.

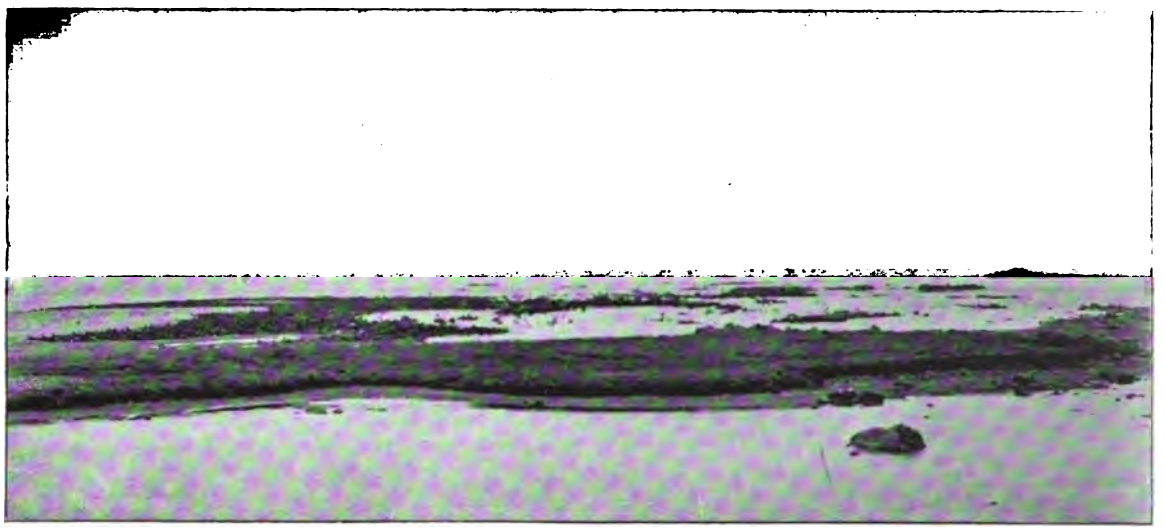
PLATE 24.

SALT-HOUSE, WITH SKIN CHUTE, NORTH ROOKERY, BERING ISLAND.

a.—BEACH, NORTH ROOKERY, BERING ISLAND. NATIVES READY TO LOAD SKINS INTO THE BOATS.

b.—VILLAGE AT NORTH ROOKERY, BERING ISLAND. FROM SALT-HOUSE.

a.—REEF, NORTH ROOKERY, BERING ISLAND, JULY 4, 1895. BREEDING SEALS IN THREE DISCONNECTED PATCHES TO THE LEFT.
Reduced from photographs by C. H. Townsend.

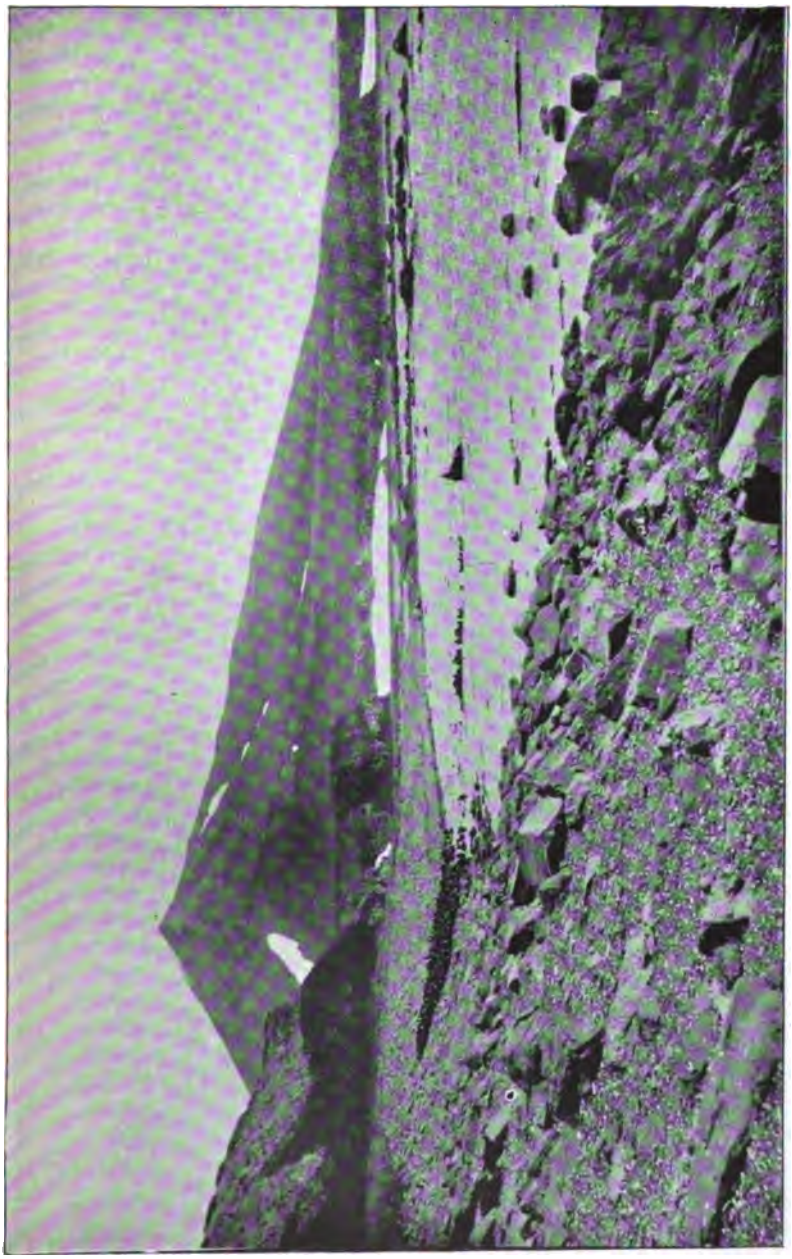


b.—SAME, JULY 9, 1895, SHOWING THE BREEDING SEALS OCCUPYING A CONTINUOUS AREA; ALSO THE "BAND" ACROSS THE "SANDS."
Photograph by N. Grebnitski.

a.—REEF AND SIVUTCHI KAMEN, NORTH ROOKERY, BERING ISLAND.
Photograph by Colonel Voloshinof, 1885. From nearly same standpoint as plate 22.

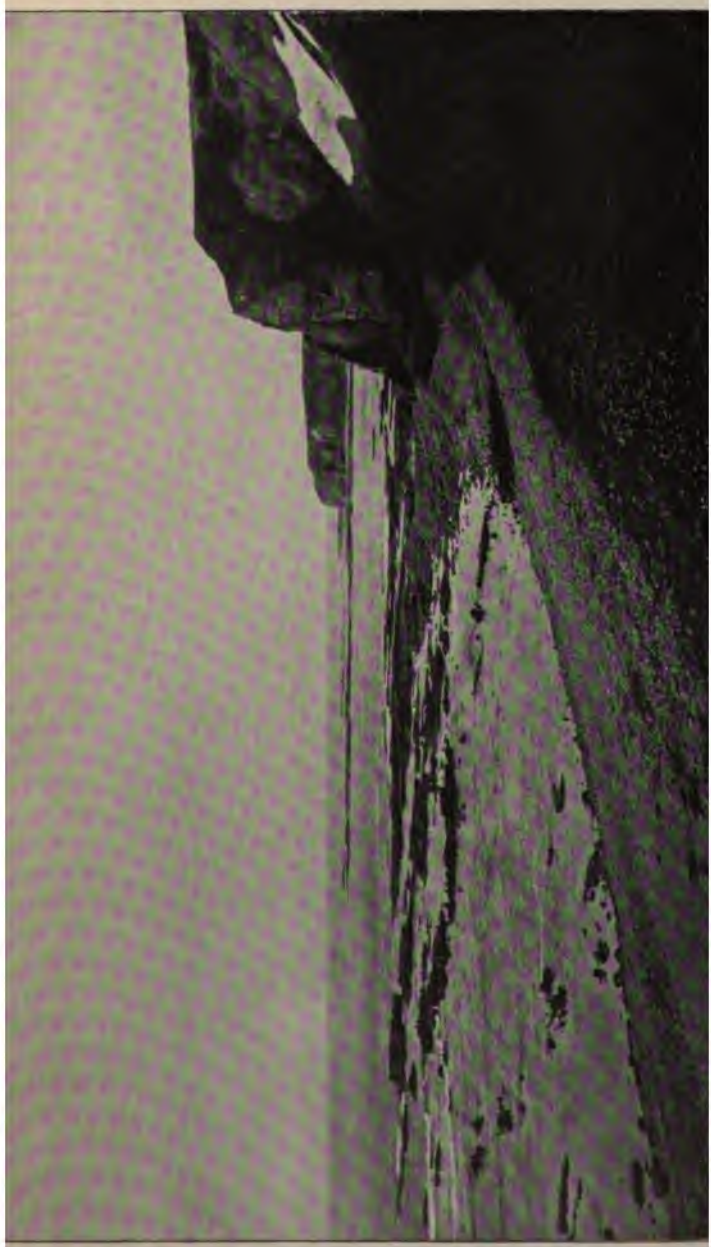
b.—STELLER'S ARCH, NEAR SOUTH ROOKERY, BERING ISLAND.

PLATE 28.



SOUTH ROOKERY, BERING ISLAND, FROM PHOTOGRAPHIC STATION No. 3 (MAP, PLATE 10). AUGUST 17, 1895.

PLAT



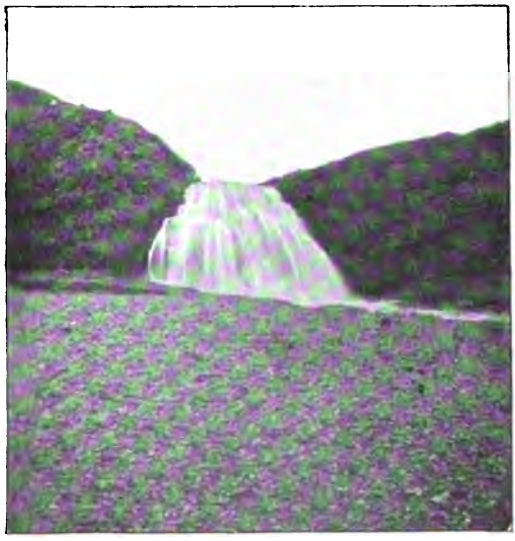
a.—Western half.

b.—Eastern half.

SOUTH ROOKERY, BERING ISLAND. REDUCED COPIES OF PHOTOGRAPHS BY COLONEL VOLOSHINOF, TO SHOW DISTRIBUTION OF SEALS IN 1885. NEARLY SAME STANDPOINT AS PLATE 29.

PLATE 32.

a.—SALT-HOUSE, SOUTH ROOKERY, BERING ISLAND.



b.—WATERFALL AT SOUTH ROOKERY, BERING ISLAND.

a.--KARABELNI VILLAGE, COPPER ISLAND.

PLATE 35.

GLINKA VILLAGE, COPPER ISLAND, FROM THE BEACH.

PLATE 36.

a.—Seal skins in salt.

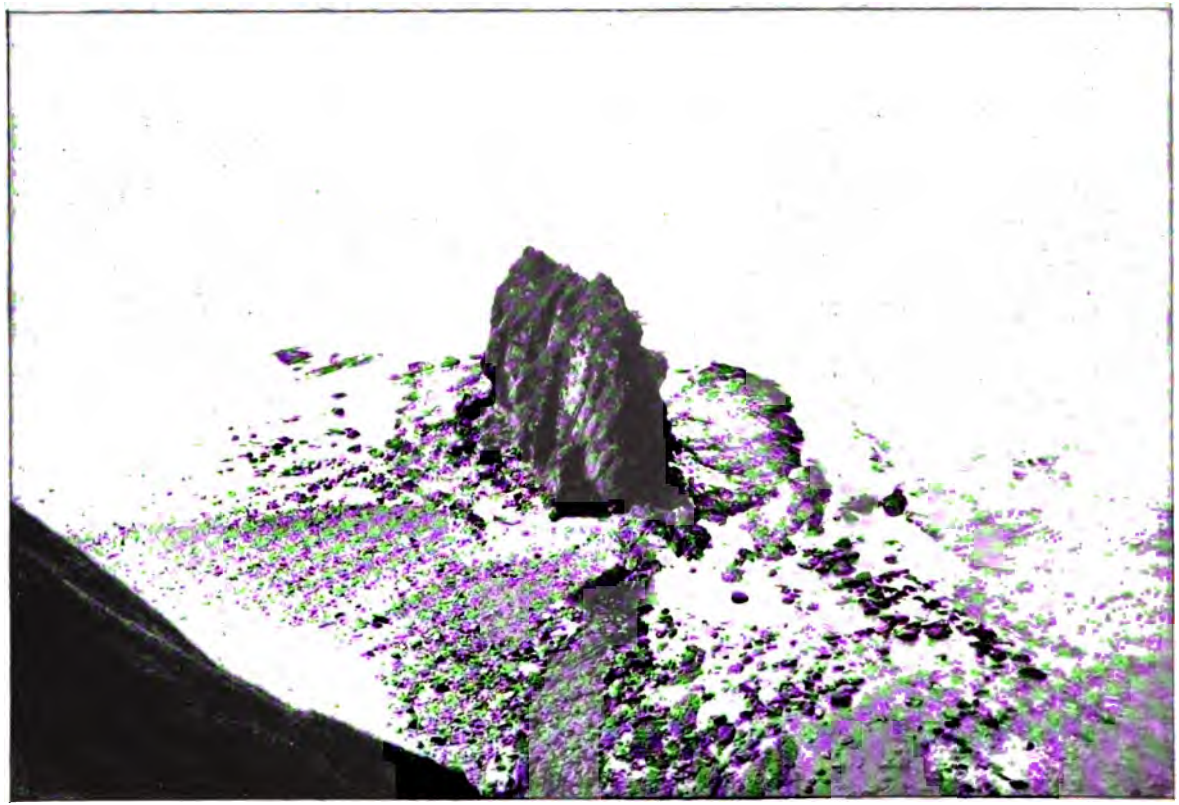
b.—Seal skins bundled, ready for shipment.

INTERIOR OF SALT-HOUSE, GLINKA, COPPER ISLAND.

PLATE 37.

GLINKA, COPPER ISLAND. NATIVES RETURNING TO THE MAIN VILLAGE.

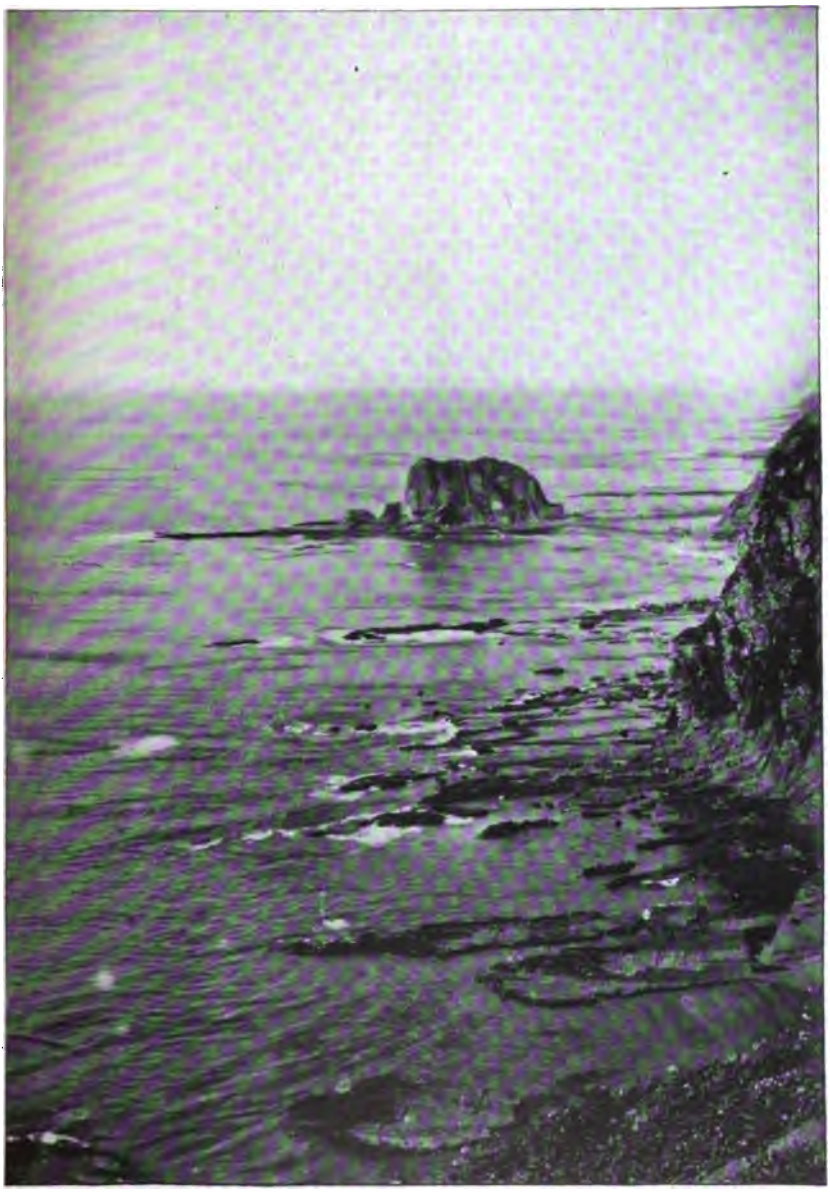
a.—From Photographic Station No. 4 (Map, plate 12). August 1, 1895.



b. – From Photographic Station No. 1, August 2, 1895.

KARABELNI STOLP, KARABELNOYE ROOKERY, COPPER ISLAND.

PLATE 39.



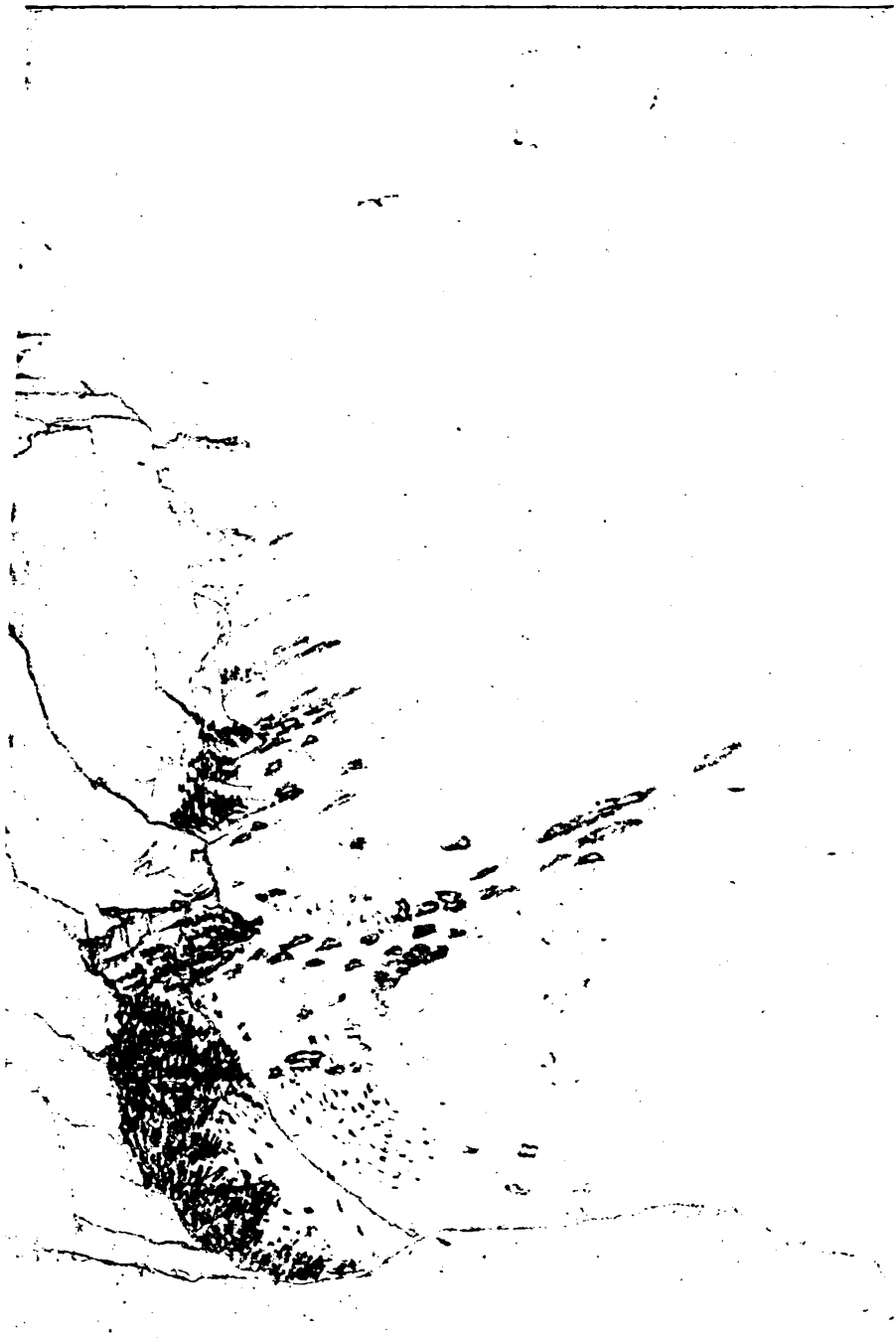
KARABELNOYE ROOKERY, COPPER ISLAND. LOOKING WEST TOWARD KARABELNI STOLP, FROM PHOTOGRAPHIC STATION No. 3 (MAP, PLATE 12). AUGUST 1, 1895.

KARABELNOYE ROOKERY, COPPER ISLAND, LOOKING EAST TOWARD VODOPADSKI MYS, FROM PHOTOGRAPHIC STATION No. 2 (MAP, PLATE 12). AUGUST 1, 1895.

PLATE 41.

.NI STOLP, COPPER ISLAND. FACSIMILE OF PENCIL SKETCH BY THE AUTHOR, JULY 3, 1883, FROM PHOTOGRAPHIC STATION No. 1 (PLATE 38*b*), TO SHOW DISTRIBUTION OF SEALS.

NOYE ROOKERY, COPPER ISLAND. FACSIMILE OF PENCIL SKETCH BY THE AUTHOR, JULY 3, 1883, FROM PHOTOGRAPHIC STATION No. 3 (PLATE 39), TO SHOW DISTRIBUTION OF BREEDING SEALS.



OYE ROOKERY, COPPER ISLAND. FACSIMILE OF PENCIL SKETCH BY THE AUTHOR, JULY 3, 1883, FROM PHOTOGRAPHIC STATION No. 2 (PLATE 40), TO SHOW DISTRIBUTION OF BREEDING SEALS.

b.—Drive steps, Stolbovaya Bukhta, from Photographic Station No. 5 (map, plate 12).

KARABELNOYE ROOKERY, COPPER ISLAND.

b.—Drive steps, Stolbovaya Bukhta, from Photographic Station No. 5 (map, plate 12).

KARABELNOYE ROOKERY, COPPER ISLAND.

DRIVE STEPS AND WATERFALL, VODOPAD, KARABELNOYE ROOKERY, COPPER ISLAND.

PLATE 45.

PALATA, COPPER ISLAND, FROM ZAPADNI.
From a photograph by N. Grebnitski, August 7, 1895.

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PLATE 47.

SLAND.
'une 4, 1892.

PALATA ROOKERY, COPPER ISLAND, FROM A ROCK OFF THE ROOKERY, LOOKING UP THE GULLY. AUGUST 2, 1895.

PLATE 48.

PALATA ROOKERY, COPPER ISLAND, FROM SAME STANDPOINT AS PLATE 48, LOOKING TOWARD SABATCHA DIRA. AUGUST 2, 1895.

PALATA ROOKERY, COPPER ISLAND. FROM NEARLY SAME STANDPOINT AS PLATE 55, LOOKINC DOWN THE GULLY. AUGUST 7, 1895.

PLATE 50.

PALATA ROOKERY, COPPER ISLAND, FROM HILL MARKED "806" FEET ON MAP, PLATE 14. AUGUST 7, 1895.

PLATE 51.

PLATE 52.

A ROOKERY, COPPER ISLAND. FROM A SKETCH BY THE AUTHOR, JULY 16, 1883, FROM SAME STANDPOINT AS PLATE 51, TO SHOW DISTRIBUTION OF SEALS.

a.—Palata Rookery, Copper Island Standpoint a little farther to the right and lower down than plates 51 and 52.

b.—Zapadni Rookery, Copper Island. Standpoint lower down tnan plate 54*a*.

COPIES OF PHOTOGRAPHS BY COLONEL VOLOSHINOF, TO SHOW DISTRIBUTION OF SEALS IN 1885.

a.—ZAPADNI ROOKERY, COPPER ISLAND, FROM SAME POINT AS PLATE 51. AUGUST 7, 1895.

a.—Palata Rookery, Copper Island Standpoint a little farther to the right and lower down than plates 51 and 52.

b.—Zapadni Rookery, Copper Island. Standpoint lower down than plate 54*a*.

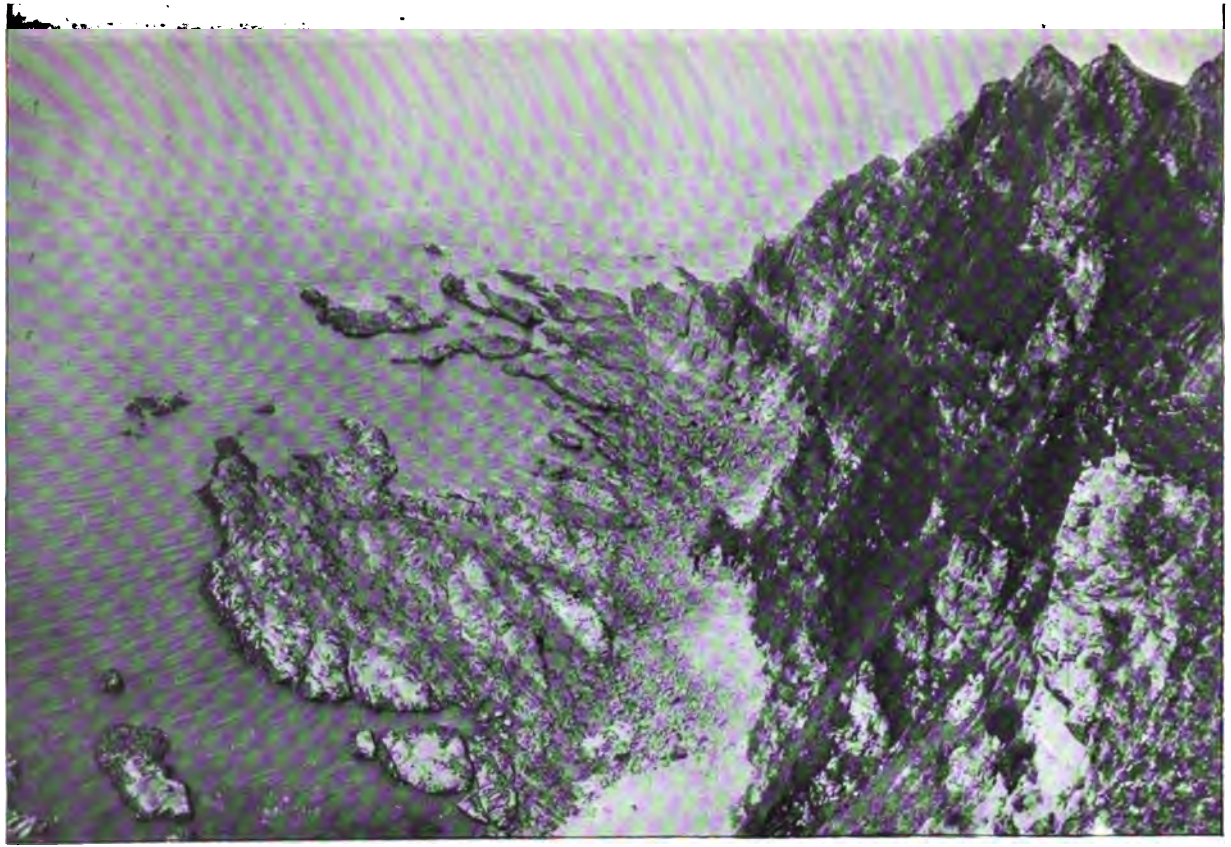
COPIES OF PHOTOGRAPHS BY COLONEL VOLOSHINOF, TO SHOW DISTRIBUTION OF SEALS IN 1885.

a.—ZAPADNI ROOKERY, COPPER ISLAND, FROM SAME POINT AS PLATE 51. AUGUST 7, 1895.

b.—URILI KAMEN ROOKERY, COPPER ISLAND, FROM PERESHEYEK. AUGUST 3, 1895.

PLATE 55.

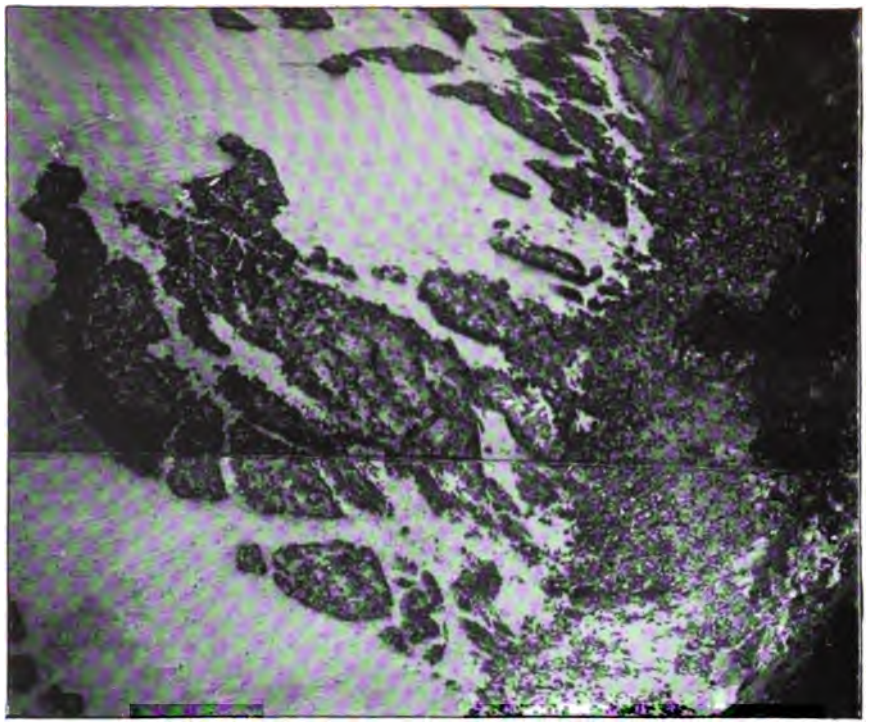
ZAPALATA ROOKERY, COPPER ISLAND, LOOKING EAST TOWARD STOLBI. AUGUST 7, 1895.



ZAPALATA ROOKERY, COPPER ISLAND, LOOKING WEST TOWARD END OF PALATA, FROM SAME POINT AS PLATE 55. AUGUST 7, 1895.

PLATE 56.

PLATE 57.



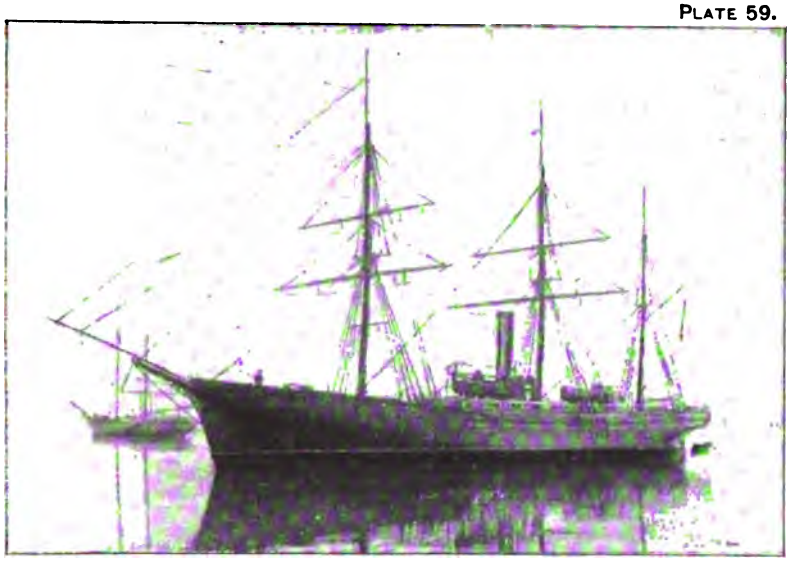
a.—ZAPALATA ROOKERY, COPPER ISLAND. FROM A PHOTOGRAPH BY COLONEL VOLOSHINOF TO SHOW DISTRIBUTION OF SEALS IN 1885. SAME STANDPOINT AS PLATE 56.

b.—SIKATCHINSKAYA BUKHTA ROOKERY, COPPER ISLAND, FROM A ROCK OFF THE ROOKERY.
Photograph by N. Grebnitski, August 2, 1895.

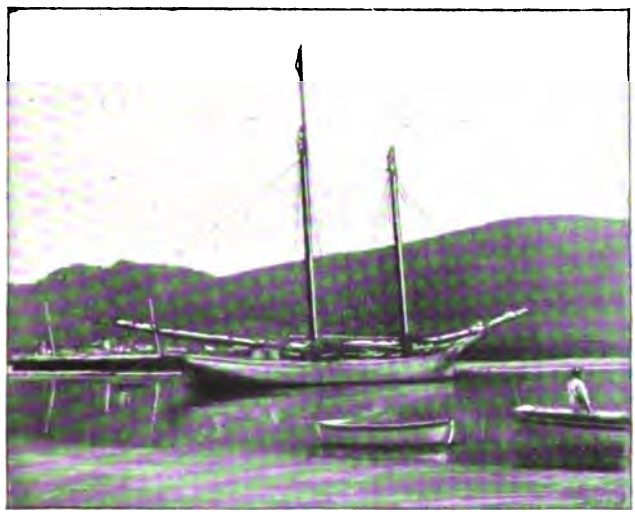
a.—DRIVEWAY FROM ZAPADNI ROOKERY. COPPER ISLAND, LOOKING DOWN THE VALLEY. AUGUST 8, 1895.

b.—DRIVEWAY FROM PESTSHANI HAULING-GROUNDS, COPPER ISLAND.

c.—PESTSHANI SALT-HOUSE, NEAR GLINKA VILLAGE, COPPER ISLAND.

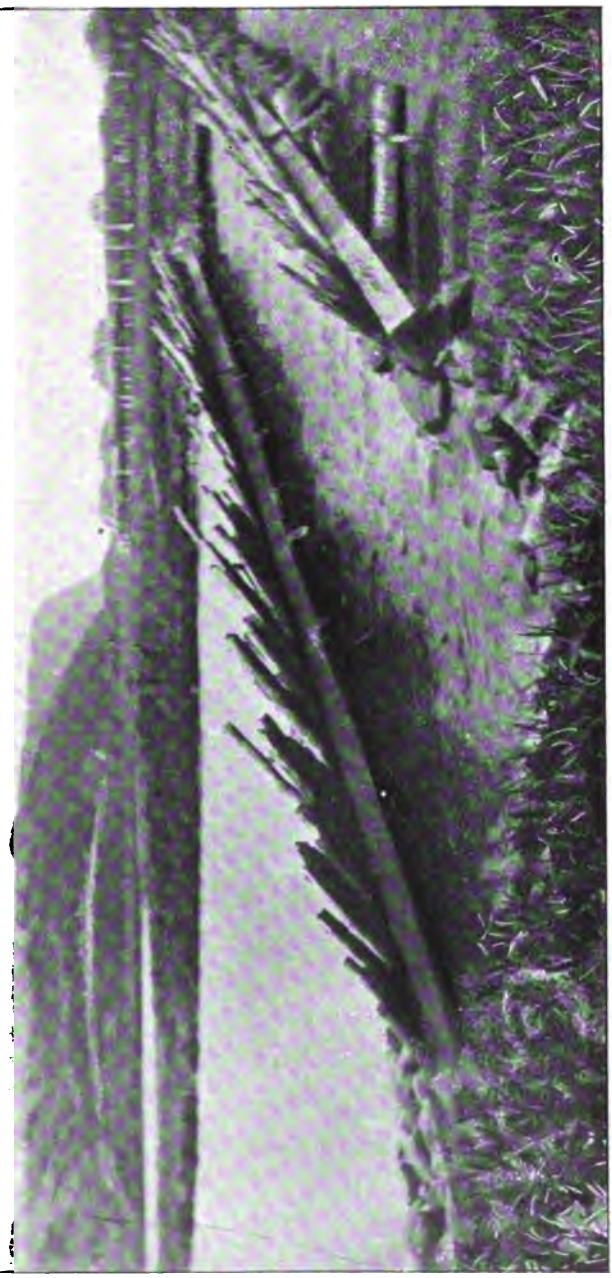


a.—HUTCHINSON, KOHL, PHILIPPEUS & CO'S STEAMER ALEKSANDER II.



b.—RUSSIAN SEAL SKIN COMPANY'S SCHOONER BOBRIK, CAPT. D. GRŒNBERG.

c.—*REDUCED COPY OF CHORIS'S PICTURE* OF FUR SEALS. VOY. PITT. AUT. MONDE, PLATE XV (1822).



SALMON WEIR (ZAPORR), SARANNA RIVER, BERING ISLAND.

PLATE 61.

UNIVERSITY OF MICHIGAN